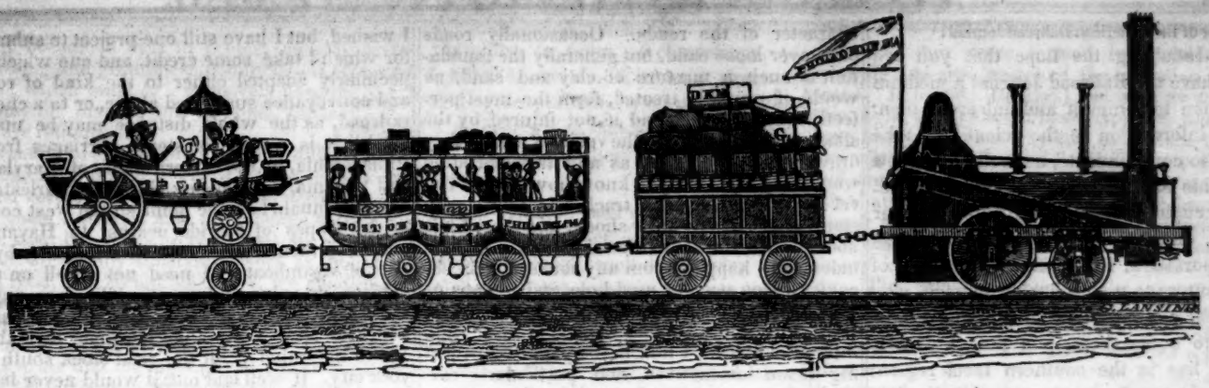

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.] **SATURDAY, MAY 18, 1833.** [VOLUME II.—No. 20.

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AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, MAY 18, 1833.

UNDULATING RAILWAYS—It will be recollected by our readers that we some time since gave, from the London Athenæum, some account of a newly invented Railway. We are now enabled to give further particulars relative to it, from the April number of the Repertory of Arts and Inventions. Will some of our correspondents favor us with their opinion of the merits of the plan?

We commence in this number the publication of Mr. BABBAGE's work on the "Economy of Manufactures," which will be continued from time to time until the whole is transferred to our columns. It will be completed in the current volume of the Journal.

NORWICH AND WORCESTER RAILROAD.—We understand that the returns have just been received from the engineers who surveyed the route of this road during the last season, and that they concur with previous surveys in showing the route to be extremely eligible for the construction of a railroad. The country through which this road is designed to pass is said to be densely populated, and very fertile, as well as one of the most extensive manufacturing regions of New-England. The distance from Norwich to Worcester is sixty miles, and, added to the Boston and Worcester road, makes the distance from Norwich to Boston about 103 miles. Liberal charters are obtained from Massachusetts and Connecticut, and the Connecticut Legislature has granted a bank with its stock free from taxation, and with a capital of $500,000, to aid the railroad. The books of the railroad and the bank will be opened for subscription at Norwich, on the 29th inst.

QUINEBAUG BANK.—This bank was incorporated by the Connecticut Legislature in May, 1832, with a capital of $500,000, to be located at the city of Norwich, in that state. The bank is required to subscribe to a part of the stock of the railroad from Norwich to Worcester; and in consideration of that subscription, the stock of the bank is to be exempt from taxation until the united capital of the bank and railroad shall pay six per cent. The bank is said to be eligibly situated for the transaction of business, and the route of the railroad very favorable and promising to be profitable. The books of this bank are to be opened at Norwich, Connecticut, on the 29th inst.

SOUTH CAROLINA RAILROAD.—We understand (says the Charleston Mercury of May 7) that at an annual meeting, yesterday, of the stockholders of the South Carolina Canal and Railroad Company, the reports of the Direction and the Commissioner presented a most gratifying prospect of the speedy completion of this laudable enterprize, and afforded every reasonable encouragement to the stockholder of realizing a fair remuneration for their patriotic investments.

According to the deductions drawn from the data offered by the statements contained in these two valuable papers, our information has come to a conclusion which will be gratifying to the pride of every true lover of his native State, and enable the historian to give her a pre-eminence amongst the foremost and most active in the introduction of this novel and delightful mode of intercourse.

In South Carolina the Locomotive travels over a great extent of Line of Railroad daily in consecutive miles, than is or can now be done in any part of the world. South Carolina ran an engine successfully and profitably on the railroad 18 months previous to any other state in the Union. The U. S. Mail and stage passengers were transmitted on it 9 months before any other company transported it on a railroad; and it is questionable if any extended line of communication of an efficient and permanent character, whether railroad, turnpike, or canal, has been executed in so short a time, or at a cost approximating so nearly to the original estimate. We understand that these documents are ordered to be published, and we shall take the first opportunity of laying them before our readers with such remarks as the occasion may require. The cash receipts for April, freight and passage, upwards of $3600.

SOUTH CAROLINA RAILROAD.—We have been politely furnished with a copy of the Report made by the Directors to the Stockholders of the South Carolina Railroad, on the first Monday of the present month, from which we learn the present condition of that important work. It is our intention to give it entire in our next; but for the satisfaction of those who have felt a deep interest in its success, we give the following extract to show the regularity and certainty of the performance of the engines:

The performance of the West-Point during the 120 days has been as follows:

60 trips to Branchville, each 62 miles, is	3720
52 trips to Midway, each 72 miles, is	3744
Aggregate, - - - - -	7464

(The West-Point lost 8 days occupied in repairs.)

The performance of the Phœnix during the 120 days has been as follows:

60 trips to Branchville, each 62 miles, amounting in all to - - - - -	3720
58 trips to Midway, each 72 miles, 4176, and 2 double trips, each 144—288,	4446
	8184

(The Phœnix was employed every day during the 120.)

The total number of miles performed by the West-Point and Phœnix is 15,648, in 120 days.

The number of passengers that arrived and departed during the above period, (exclusive of attendants, officers of the company, clergy, contractor, and workmen, who had, during the progress of the work, passed free,) is 4109, or on an average 34 per diem. Cash receipts for freight and passage money, $11,526 78. By a reference to the detailed statement marked (B.) and hereunto annexed, it will be observed that there has been an uniform increase in the passage and freight money. On referring to previous cash receipts, I find the amount received the three first months of the present year to be greater than the amount received during the six last months of the past year. The operations were chiefly confined to the transmission of passengers, staple production of the country, light merchandize, and materials to advance the completion of the work. Horses, cattle, vehicles for travelling, staves, shingles, and other commodities of less profitable transportation, were necessarily declined.

This road, in connection with the line of steam packets from New-York to Charleston, will add greatly to the facilities for travelling, to those who, for business or amusement, wish to visit the Southern and South-western States.

To the Editor of the American Railroad Journal:

Sir,—Indulging the hope that you are willing to have the Railroad Journal a medium of instruction to common and unlearned men, as well as information to the scientific, I take the liberty to communicate, as well as I can, a few thoughts and inquiries which have frequently occupied my mind for three or four years past, on the subject of roads, carriages, and transportation, in the hope that some of the contributors to your valuable Journal, who are practical and scientific men, will do me the favor to notice them, and point out their errors. I live in the southern level region, where you know there are extensive districts of swamp, and where the getting of various descriptions of timber is the most considerable business. The men engaged in this business use, for the transportation of their timber out of the swamps to the places where they raft it, what they call "carry-logs," or very strong and heavy wheels six or seven feet high; and they tell me that without such large wheels they would scarcely be able to move their timber at all, through the mud and over the roots of the trees. Under these circumstances, then, I perceive that there is a very great saving or gain in the application of power by the use of wheels of large diameter; and a part of the reason is plain to the most common mind. I clearly see that the ease and the smoothness with which a wheel passes over any object, whether a root of a tree, as in this case, or over a pebble or a mud-hole, is in proportion to the size of the wheels, so that a wheel of 12 inches diameter would be entirely stopped by an obstacle 6 inches high, over which a wheel of 7 feet would pass with but a little addition of power, and one of 16 feet with a still smaller addition. I have also reflected on the effect of wheels of various descriptions in passing over sand, and conclude that the larger the wheel and the broader the tire, the less will its motion be interrupted by sinking into the sand; and I am also inclined to believe, that the depth to which a wheel will sink into the sand will be very much as the motion, being least where the motion is greatest: but of this I am not so confident.

I perceive another advantage which a large wheel has over a small one, in the friction at the axle. This friction is not affected either by the size or weight of the wheel. The size of the axle depends upon the load, and the friction at the axle depends entirely upon the load which the axle bears, and the number of revolutions made by the wheel in a given time. There is the same friction at the axle, (the load, the axle, and the time, being the same,) in one revolution of a wheel three feet as of one twenty feet in diameter, and the friction is also probably the same at the road or periphery of the wheel, but the progress of the large wheel would be as twenty to three of the small one; and here I beg leave to make an inquiry. After the large and the small wheel have received their motion or momentum, so that each revolves in the same time, and each has the same load, will the large wheel require more power (saving the resistance of the atmosphere) to keep up its revolution, and its forward motion, than the small one, although the forward progress of the large one be in proportion to its circumference?

I have also often reflected upon the face of the country in this region, and upon the present character of the roads. Occasionally roads pass over loose sand, but generally the foundation is such a mixture of clay and sand, as would, if properly treated, form the most perfectly smooth roads, and if not injured by the shoes of horses, and by the vehicles which they draw, would be as solid as any transportation would require. But you know how horses travel: they go the same track, and that is constantly loosened by their shoes; and the wheels also passing the same track, wherever a small indentation happens from any cause, it soon becomes a deep seam or mud-hole, and so remains until the next season of repairing highways. In connection with this subject I read with interest whatever I find in the papers concerning steam locomotives, and particularly carriages for common roads, and having, as you see, arrived at a full conviction that, if there is any suitable propelling power, a great advantage will be gained by adopting large wheels, I have been quite disappointed in seeing no account of any trial being made of them in steam carriages. I confess this circumstance has led me to suppose that there must be some fallacy in the view which I have taken of it; and to have this supposition made a reality will be a favor, by preventing my mind from indulging the idea any longer, for, I assure you, it has been led to some very high anticipations.

For steam carriages, large wheels, even to sixteen or twenty feet diameter, would have, as it appears to me, great advantages over small ones, almost sufficient indeed to make a good road of earth equal to a railroad; their motion in passing over the road would be much more smooth and even. Another advantage would be in the application and regulation of the power, for suppose the wheel to be twenty feet diameter, and the speed designed for the carriage to be thirty miles per hour, the revolutions of the wheel would be 2640 per hour, and 44 per minute; and if the piston moved at the rate of 2½ miles per hour, its motion or stroke would be 30 inches, without any gearing to increase the motion of the wheels. But on this subject I should be exceedingly modest indeed, for I know very little of steam machinery, not even enough, I fear, to make myself understood. I am sorry to learn by the papers that the prospect of steam carriages becoming profitable on common roads is at this time rather discouraging. It is certain, however, that they are used very efficiently, if not very profitably, on railroads, and particularly on such as are nearly straight and level.

There are few places, comparatively, requiring roads, where they can be made at the same time straight and level, and it appears difficult as yet to attain safely very great speed on a winding railroad.

In this point, and in the use of large wheels, and in the adhesion of the wheels, a road of earth has advantages over a railroad. At the same time it would cost much less, be vastly more durable, than a railroad supported by wood, and require, comparatively, no repairs. It is evident that such roads must be entirely distinct from other roads, for horses must not be allowed to travel on them at all. It need not be objected to such wheels, that the carriages would be too elevated, and liable to upset, for all heavy lading, the furnace water, &c. might be suspended under the axle, as near to the ground as would be safe, and over a smooth road this might be very near indeed.

Neither would the weight of the wheels be any objection, at least on a level road, because the dimensions of the axle, and the strength and weight of all the other parts of the carriage, would be required no greater than with small wheels, and would be governed entirely by the lading they would have to support. The friction at the axle would therefore be greatly reduced, as compared with the distance gone over. A wheel of 60 feet circumference and 9 inch tire would probably weigh a ton. Its adhesion would of course be greater, and its effect on the road would be to make it harder and smoother.

This communication is already longer than I wished, but I have still one project to submit, for which I take some credit, and one which is peculiarly adapted either to the kind of road and conveyance suggested above, or to a cheap railroad, as the whole distance may be made level. It is a road for steam carriages from Philadelphia, by the eastern shore of Maryland and Virginia, and passing Norfolk, Charleston, and Savannah, to some point on the west coast of the Capes of Florida nearest to Havana; and to be thence connected with that city by a line of steamboats. I need not dwell on the subject, its value and practicability are apparent. It would greatly increase the intercourse between New-York and Havana, and thus add to the value of all the road stock south of your city. If well laid out, it would never have an injurious rival, and would increase in value rapidly, constantly, and indefinitely, as long as science and society shall continue to advance. The time is not distant when it would become one of the greatest thoroughfares of its length on the globe.

C. O.

NEW-YORK GUARD RAIL.

New-York, May 7, 1833.

To the Editor of the American Railroad Journal:

Mr. Minor,—The inventor of the Guard Rail makes quite a spirited defence of its merits. It was not in my remarks intended to "misrepresent" his principle, in calling in question the propriety of his claim, that its strength was that of the arch, for an arc is a part of a circle: an arch is an arc sustained by abutments, in architecture, and is strong only to resist pressure, and *pressure* is not *tension*—a straight line is not a *curve*.

If that gentleman himself misrepresented the principle of his improvement by *calling* it, instead of *comparing* it with an arch, it was an error that does not affect the *experimental strength* of his method.

That it does not contain the arch is evident from the practicability of making a different combination that will. Hence, if I embed a curved bar completely in the casting, so that its *ends* rest on a solid mass of iron as abutments, and its crown rises towards the surface of the middle of the rail, it is then effectively an arch of wrought iron enclosed in the casting, and though not a "guard" rail, will be a *strong* one. For the lower edge of the rail cannot draw apart unless the arch flattens, and this cannot occur unless it draw apart, and both must occur together before it breaks. The degree of strength beyond what the cast iron alone gives may be ascertained by experiment. On this plan the lower edge may be thick, and the inner space of the curve thin.

So also the curved bar may be inverted, and some comparison be made between these combinations.

But I confess that unless there be found some effect of our climate not experienced in England, my expectation is that *rolled iron* will make the cheapest rails.

Wishing every improvement to have due recompense, and knowing that they do generally receive it, I could not see the good policy, propriety, or occasion, for *running down*, in order to enhance his, the art of railroad making as now in practice in England and in this country. It would be a painful discovery to many stockholders, were it matter of fact that timber railways will not last over "*five years.*"

When this was said on the authority of *one case*, in which the bad choice of timber may have been the cause, and the argument founded in an *effect, which I knew was easily guarded*

against, it became a duty to protest against this surprising and groundless denunciation of a material, which *must be* extensively used in our country for many years to come, unless railroads are relinquished.

The condition of our country is very different from that of England. *There* a dense population and very active trade demands permanency on their railways, and the revenue can afford the cost, but if we were to wait till we could afford an equally substantial work as the Liverpool road, not 30 but 300 miles, we shall have waited till Montreal, Baltimore, and Philadelphia, will have engrossed the western trade. We must adapt means to ends.

It seems to me that the ingenuity of American engineers should be directed to making capital produce the greatest useful effects for the next thirty years. Men of calculation will put money into works that will give interest and lay up one per cent. for a renovating fund, knowing that the growth of the country, the reaching and opening the objects of the work, will give value to the *privilege of the route*, and enable them at the end of thirty years to deem it worthy of the most substantial superstructure.

While, therefore, there can be no objection to improvements which relate to durability, to expect that we shall be able to make very *costly railroads on long routes* is unreasonable. Our best skill will be better employed in devising economy of mode and execution.

When we see inventors offering in support of their claims the anonymous testimony of engineers and professors, it prompts the wish that there was here, as in London, an *Institute of Civil Engineers*, who would investigate every new invention, and give them, when meritorious, an open support. J. L. Sullivan.

[*For the American Railroad Journal.*]

Mr. Editor,—In your Journal of the 27th of April a *communication* appeared, the author of which distinguished it by the letters U. A. B., containing strictures on the "Guard Rail," together with extracts from publications alluding to the distinctive qualities of *wrought iron rails*. In the course of my remarks I shall show, that U. A. B., if sincere in his statements, is not only actuated by erroneous impressions, but that his statements manifest a *want of consistency* in allusion to the subject, and a want of consistency compared with a previous statement on the same side of the subject, made by Mr. S., which was also published in this Journal. *Both* of those statements, however, were made, without either of the parties having examined a *specification* of the improvement, or without examining as to the *practical results* effected in the manufacture of the "Guard Rail." It is, therefore, not surprising, that men thus situated should advance wrong ideas, when some of the most eminent engineers in this country would not hazard an opinion of its merits, even after *minutely* examining the *specification and models*, but required to examine rails in *full size* for use; and after such *rails were made* and examined, the *castings* composing those rails were *not* of a doubtful nature, but were *perfect*, and were approved of to the extent of my wishes.

In the last number of this Journal I adverted to *interested advocates* of specific objects: among those *specific objects* are *wrought iron rails*, also *wooden rails*, and that *such* interest existed and does exist to as great or greater extent in Europe than in this country.

Both the communications to which I have alluded, that of Mr. S., as also that of U. A. B., are professedly both on the *same side of the question*, and the authors of them both engineers; therefore, in point of *consistency*, to which I alluded, we should at least presume they would agree, particularly on points of *theory*, on a subject which they assume to understand, if they did not in their thoughts on *practical* results.

If they will examine each other's statements below quoted, where each describes the effect *in his opinion* produced, each disagreeing with the other, they will discover that *both are wrong* in theory and in practical results.

I allude particularly to those sentences in their communications which described their views of the *effect* produced when pouring *melted* metal around a bar of wrought iron: where the one gives reasons why it will be "loose in the bore," and the other gives reasons why it will be so closely bound in the bore, or orifice, that it may tear the rod asunder by contraction, as follows: Mr. S. stated that "when melted iron is poured around a cold bar of wrought iron, the latter expands, and on cooling *contracts*, and the cast iron in cooling shrinks, leaving it *loose* in the bore towards the centre of the mass. All depends, then, (he adds,) on this subsequent operation and the quantity of *heading* produced by percussion."

On the same point in the statement by U. A. B., after premises relative to difference in contraction and expansion at different degrees of temperature, in allusion to melted metal flowing around a bar of wrought iron, the following appears: "The wrought iron bar (he states) will be strained longitudinally, and the cast iron which incloses it compressed longitudinally, when the rail is not subjected to any extraneous force; hence (he adds), the wrought iron bar may be nearly or quite torn asunder without any extraneous force being applied to the rail."

With a view to show the error of *both* of those statements, and in the *first place* so far as relates to the *theory* of the case, I will state the well known maxim, that *effect* cannot be produced without *cause*; and if we apply that maxim to *metals* affected by *heat*, and again, if we admit the stated-to-be *fact*, that *contraction* and *expansion* of *wrought* iron and of *cast* iron are equal at equal temperatures, then, if *heated* iron be placed in contact with cold iron, the one will, of course, *impart*, and the other *imbibe heat*, until the *temperature* of both become *equal*; thus, when equal in temperature, they will be equally *expanded*, and if equally cooled, *contraction* will be equal. Where, then, it may be asked, is that "*force*" alluded to by U. A. B., which, as he states, may tear a *wrought iron bar* nearly or quite asunder, and *that*, too, while in its *heated state*. Even if it were a fact, that contraction and expansion were *unequal* in reaching equal temperatures, he seems to have overlooked the fact that a *heated* wrought iron rod may not only be "strained longitudinally without nearly or quite tearing it asunder, but it may be *drawn to slender shreds* in the form of wire without "tearing it asunder." Hence, in *practice*, in the formation of "Guard Rails," whether the wrought iron be covered with a *casing* of cast iron, an eighth of an inch or an inch in thickness, I find the rail to be as perfect in its exterior appearance as if it were made entirely of cast iron.

U. A. B. in his communication also stated "that soon after malleable iron was first used for rails, they were formed by combining wrought and cast iron, and the invention patented. If he (Mr. Bulkley) had been aware of this, I (he adds) should have expected him to have shown in what way his rail differs from any which has been tried." In reply to this I will state that I was aware of that, and various other attempts at making rails, and have in proper place, in my *specification*, stated wherein it differs from *all* other rails. It differs in theory, in principle, in effect, and in practicability. The principal object of the invention to which he alludes was that of the formation of a *wrought iron rail* containing notches upon its *upper* surface, and over these notches a *plate* of *cast iron* about three-fourths of an inch downward on the *upper* surface was applied, with a view to attain a hard *cast iron surface* for the wheels to run upon; the cast iron plate, as might naturally have been expected, broke loose among those notches, and defeated the object: the main part of the rail, the two *sides* and *lower* surface, were of wrought iron *unprotected* from corrosion: whereas the "Guard Rail" presents a firm hard cast iron surface for the wheels to run upon. The *wrought iron* guard is *incased* within the cast iron, thereby protected from corrosion, it passes from *end* to *end* through the *lower* edge of the cast iron, secures the cast iron on the principle of the abutments to an arch, thereby tending to prevent a fissure from commencing in the cast iron.

U. A. B. in his communication alluding to *my having stated* that by the combination of metals in forming the "Guard Rail," perhaps four-fold of *that description* of strength necessary in the construction of *safe* and *permanent* rails could be attained than by either description of metal of equal weight used separately, he remarked that it seems to be impossible. I, however, do think it possible, keeping in view that the "Guard Rail" is to require *supporters* from six to nine or ten feet apart; and is to present a *cast iron* surface, which will probably last fifty or a hundred years or more; whereas Tredgold in his Treatise, when adverting to the distinctive qualities of *wrought iron*, mentions the disadvantage resulting from a renewal of wrought iron rails every fifteen or sixteen years. Another of its qualities is that by this combination no *fissure* can *commence* in the lower edge of a rail, without drawing the wrought rod endwise; and even if from any cause the cast iron part of a rail should become cracked, the strength of the wrought iron rod alone, in the lower edge of the rail, is sufficient to sustain the rail in place for use.

As to the comparative *compressing* force of cast and of wrought iron, to which he alludes, I deem it to be matter of no consequence: there will be no danger of the *upper edge* of a cast iron rail yielding to compression, whereas *wrought iron* rails, as appears by *publications in England*, do so far yield to compression as to take a *set curve* when overstrained, even when placed on foundations only *three* feet apart.

In allusion to the *destructive quality* of wrought iron rails, as stated by numerous authors and engineers, to be "*partly* in consequence of the *great weight* of the wheels, which, being rolled upon the rails, extends the laminæ composing their upper surfaces, and at length causes those upper surfaces to break up in scales," U. A. B. stated that *Mr. Wood*, in the second edition of his Treatise on Railroads, page 45, *speaks thus*, "It has been said by some engineers, that wrought iron rails exfoliate, or separate in their laminæ, in that part which is exposed to the pressure of the wheels. This I *pointedly deny*, as I have closely examined rails which have been in use many years, and on no part are such exfoliations to be seen." If U. A. B. will again refer to Wood's Treatise, he will find that *Mr. Wood* is not author of the above stated remarks: he will find that the remarks were made by Mr. G. Stevenson, of Newcastle. This abrupt *denial* of Mr. Stevenson, in the face of numerous, no doubt respectable, engineers and authors, who stated *their*

views from *observation*, goes not much to the credit of his statements. If Mr. Stevenson had have remarked that such was not the effect produced in the rails *he had examined*, a query might have been made as to the extent of weights rolled upon the rails he had examined; for on many roads in England rails are made for light loads, perhaps a ton or less—others for loads of ten tons or more. It would be folly indeed to presume a like effect to be produced on both descriptions of rails; those engineers who were so abrubtly opposed by Mr. Stevenson, confined their observations to rails upon which "*great weights*" were rolled, and their views, as stated, seem perfectly consistent with the nature of wrought iron.

As to that part of the communication of U. A. B. which alludes to the liability of wrought metal to *decay* and become *weakened* by *crusts* of *rust*, when laid near the surface in *damp situations*, I refer to the American Railroad Journal dated 4th of May, inst. where that part of the subject is stated at length, accompanied by extracts from publications, in a communication written on the subject of the "Guard Rail."

The most singular remark in the communication of U. A. B. is as follows, in which he states "Sufficient experiments and observations have not yet been made to determine, *exactly*, how much faster cast iron is worn away by the action of the wheels on the rails, than wrought iron; but it *seems* that *cast iron* wears off about *five times as fast* as *wrought iron*." A man who would pen a sentence of the above description, for public inspection, *might* excuse himself by saying he was unacquainted with the nature of metals. It is generally well known that *malleable* iron is comparatively so soft that a common file will reduce it to fragments; whereas cast iron, particularly if cast on a *chill*, is of consistency nearly, or quite equal in *hardness*, to steel, upon which a file seems to make no impression.

On this part of the subject, Wood, in his Treatise on Railroads, first American and second English edition, page 147, remarks, "It is considered of *paramount importance* in the construction of a railroad, to form it of such materials as *combine* strength and durability with economy; *cast iron*, while its hardness presents a surface that opposes little obstruction to the wheels of the carriages, forms a substance *which is also very durable, and resists the action of the wheels with great effect;* and adds, "its *brittleness* forms the *only* source of reasonable objection." This *brittleness*, the *only* objection, as he states, is *obviated* by the wrought fron rod, as applied in the "Guard Rail," obviated to the satisfaction of all who examine it. I could add many pages of quotations from publications by celebrated authors, establishing the same point, above alluded to by Mr. Wood, but the nature of the case is too palpable to be misunderstood by men of understanding.

In allusion to the description of the principle on which the "Guard Rail" is predicated; a description of it as now made in full size for use, experiments of applying *weights* on rails, with foundations *eight feet apart*, together with several *quotations from publications*, showing the comparatively destructive qualities of wooden rails, and of wrought iron, persons interested in the subject are referred to the "American Railroad Journal, and Advocate of Internal Improvements," New-York, Vol. 2, No. 14. Vol. 2, No. 18. and Vol. 2, No. 19.

It is matter worthy of inquiry as to how much this country might be benefitted by the manufacture of rails for its use, and perhaps eventually for exportation: *millions* are now sent to England for the purchase of an *inferior* metal in the form of rails; while at the same time in this country, even in the State of Pennsylvania alone, *permanent* rails might be manufactured to furnish a supply for all the numerous railroads in progress, and in contemplation. I am informed from two different sources, that in the interior of Pennsylvania, the actual *cost* of manufacturing pig iron, aside from profit, is in many instances as low as fifteen to seventeen dollars per ton; if, therefore, companies who have their millions to expend for rails, would take advantage of this, after becoming satisfied of the many superior qualities of the "Guard Rail," as admitted by good judges, they would be enabled to construct *permanent* railroads, with a saving of perhaps *one third of the capital* now required for constructing roads, with rails that will require renewing in a comparatively short time. A method has been devised for moulding "Guard Rails," by which a single man could probably set moulds for casting a hundred rails a day: the object being to manufacture rails at the blast furnaces, and to convert iron at the furnace into the form of *rails*, with but a trifling additional expense to that of converting it into masses denominated pig iron. To persons interested in the subject any reasonable inquiries will be answered with pleasure. I am, respectfully, yours, &c.

R. Bulkley.

Improved Carriage Wheel Guard. [Communicated by the Inventor for the Mechanics' Magazine.]

Middleburg, Md. May 10, 1833.

Sir,—Having been informed that your paper is exclusively devoted to the publication of all new and important information connected with discoveries in mechanics, I have taken the liberty of inclosing you a description of my "Carriage Wheel Guard," an apparatus for which I have received "Letters Patent" from the Government of the United States. With this apparatus attached to wheeled carriages of all kinds, there is perfect safety and security from the occurrence of accident in case any derangement should take place in the running part. The great advantages to be derived by the travelling portion of the community, from the general introduction of this "Carriage Wheel Guard," must be obvious to the most superficial observer. Respectfully yours,

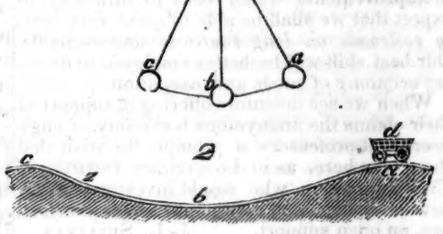
W. Zallickoffer, M. D.

Description.—This apparatus consists of a cylindrical flanged rim of iron, guards, a circular collar, and a semi-circular cap. The axle-tree and wheels are made in the usual manner. The cylindrical flanged rim of iron, is either cast whole with the hub, or in sections, and screwed to its periphery in a groove, having two flanges, one on each side, raised sufficiently high to form a groove to receive the collar. The guards are made of iron, nearly in the form of the letter Z, and secured to the axle-tree by a joint and screw bolt. To each axle-tree there are four guards, two on each side. The circular collar, made of iron, is secured to the ends of the guards, and is put around the cylindrical rim in the groove formed by the flanges. A semicircular cap, secured to the guards by hooks and staple, is put over the hub to prevent dirt falling in the groove around the rim. There are three other modes of applying the same principle described in the specification, which it is, perhaps, unnecessary here to notice, as they are not as likely to answer the purpose quite as well as the present described apparatus.

Operation.—The operation is thus:—When the axle-tree is whole, and the linch-pin, or nut, secure, then the wheel turns without touching any part of the guards or collar; but should the spindle of the axle-tree break, or the linch-pin or nut become disengaged, then the wheel would be prevented from falling by the cylindrical collar on the ends of the guards put around the hub, between the flanges of the rim, as before described, and the wheel would continue to revolve, without any impediment except that created by the friction of the collar and rim. Should the axle-tree break at the shoulder of the spindle, or in any other part, the wheel will still be preserved in its ordinary position, but will become partially locked from the friction of the collar.—For a further illustration of my invention, I refer to the model and drawings of the same, deposited in the Patent Office, and to those (if more convenient) in my possession also.

Specification of a Patent granted to Richard Badnall, Junr. of England, for inventing a Propelling Power to enable Engines to ascend Hills on Railroads. [From the Repertory of Inventions, &c.]

Fig. 1.



My improvement in the construction or formation of the trams or rails, or lines of rail or tram roads, will be best illustrated by reference to the oscillation of a pendulum.

If a plummet, suspended by a string, as fig. 1, from the point *z*, be drawn away from the perpendicular line to the point *a*, and there let go, it will fall by its gravity in the arc, *a b*, but in its falling it will have acquired so much momentum as will carry it forward up to a similar altitude at the point *c*.

Let it be supposed that a line of rails or tram-way for carriage be so constructed from the summit of two hills, as fig. 2, across a valley, that the descent from one hill, as *a*, to the valley *b*, shall subtend a similar angle up the other hill, from the horizontal line to the ascent up the hill, from *b* to *c*. Now, if a tram waggon, as *d*, be placed at the summit of the declivity *a*, it will, by its gravity alone, run down the descending line of rails to the lowest point *b*; but in so running, according to the principle of the oscillating pendulum, it shall have acquired a momentum that would carry it forward without any additional force, up the ascending line, to the summit of the hill, *c*, being at the same altitude as the hill, *a*. It is quite certain that this would really take place if the force acquired by the momentum was not impeded by the friction of the wheels of the carriage upon their axles, and upon the rails on which they run.

Hence subtracting the amount of friction as a retarding force from the momentum which the carriage has acquired in descending from *a* to *b*, it will be perceived that the force of momentum alone would only impel the carriage part of the way up the ascent *b c*, say as far as *z*. It must now be evident that the carriage *d* would not only pass down the descending line of road from *a* to *b* by its gravity, but the momentum acquired in the descent would also impel it up the second hill as far as *z*, unassisted by any locomotive

power. In order, the refore to raise the carriage to the top of the second hill, I have only to employ such an impelling force as would be sufficient to draw it from *z* to *c*. If I employ a locomotive power to assist in impelling my carriage from *a* to *b*, I by that means obtain a greater momentum than would result from the descent of the carriage by gravity alone; and am enabled by that means to surmount the hill *c*, having travelled the whole distance from *a* to *c* on the undulating line of road, with the exertion of much less locomotive power than would have been requisite to have impelled the carriage the same distance upon a perfectly horizontal plane.

I claim as my invention the form of tram or rails, or lines of tram or rail road, in such undulating curve or curves as will enable me, in ascending hills, to combine and apply the advantages of momentum from gravity acquired in running down the descending curves of hills, with the propelling power of locomotive engines to be employed thereon, not confining myself to any particular extent of line or form of curve, but varying and adapting the curve or curves according to the surface of the country, or other local circumstances.

In witness, &c.

ARCHITECTURE.—Without entering deeply into the subject of Architecture, we propose to devote a portion of our succeeding pages to the explanation of the general and fundamental principles upon which this highly interesting and beautiful science depends.

The science of Architecture has at all times, and in all civilized countries, been considered not only a pleasing but a highly useful branch of knowledge.

The great utility of this science, and the elegant accomplishments connected with its study, have almost rendered a knowledge of its rules and principles necessary to complete a liberal education. But it is not our intention to bestow encomiums on the science, nor to give any thing like a detailed history of it, but to present our readers with a plain and condensed account of what may be termed its elementary principles.

Architecture is usually divided, with respect to its objects, into three branches, *civil*, military, and naval.

Civil Architecture, called also absolutely, and by way of eminence, *Architecture*, is the art of contriving and executing commodious buildings for the uses of civil life; as houses, temples, theatres, halls, bridges, colleges, porticoes, &c.

Architecture is scarcely inferior to any of the arts in point of antiquity. Nature and necessity taught the first inhabitants of the earth to build themselves huts, tents, and cottages; from which, in course of time, they gradually advanced to more regular and stately habitations, with variety of ornaments, proportions, &c. To what a pitch of magnificence the Tyrians and Egyptians carried *Architecture*, before it came to the Greeks, may be learned from Isaiah xxiii. 8. and from Vitruvius's account of the Egyptian Oeci; their pyramids, obelisks, &c.

Yet, in the common account, *Architecture* should be almost wholly Grecian original: three of the regular orders or manners of building are denominated from them, viz. *Corinthian*, *Ionic*, and *Doric:* and there is scarcely a single member, or moulding, but comes to us with a Greek name.

Be this as it may, it is certain the Romans, from whom we derive it, borrowed what they had entirely from the Greeks; nor do they seem, till then, to have had any other notion of the grandeur and beauty of buildings, beside what arises from their magnitude, strength, &c. Thus far they were unacquainted with any other beside the *Tuscan*.

Under Augustus, *Architecture* arrived at its glory: Tiberius neglected it, as well as the other polite arts. Nero, amongst a heap of horrible vices, still retained an uncommon passion for building; but luxury and dissoluteness had a greater share in it than true magnificence. Apollodorus excelled in *Architecture*, under the emperor Trajan, by which he merited the favor of that prince; and it was he who raised the famous Trajan column, existing to this day.

After this, Architecture began to dwindle again; and though the care and magnificence of Alexander Severus supported it for some time, yet it fell with the western empire, and sunk into a corruption, from whence it was not recovered for the space of twelve centuries.

The ravages of the Visigoths, in the fifth century, destroyed all the most beautiful monuments of antiquity; and *Architecture* thenceforward became so coarse and artless, that their professed architects understood nothing at all of just designing, wherein its whole beauty consists: and hence a new manner of building took its rise, which is called the *Gothic*.

Charlemagne did his utmost to restore *Architecture;* and the French applied themselves to it with success, under the encouragement of H. Capet: his son Robert succeeded him in this design, till by degrees the modern *Architecture* was run into as great an excess of delicacy, as the Gothic had before done into massiveness. To these may be added, the Arabesk and Morisk or Moorish *Architecture*, which were much of a piece with the Gothic, only brought in from the south by the Moors and Saracens, as the former was from the north by the Goths and Vandals.

The architects of the 13th, 14th, and 15th century, who had some knowledge of sculpture, seemed to make perfection consist altogether in the delicacy and multitude of ornaments, which they bestowed on their buildings with a world of care and solicitude, though frequently without judgment or taste.

In the two last centuries, the architects of Italy and France were wholly bent upon retrieving the primitive simplicity and beauty of ancient *Architecture;* in which they did not fail of success: insomuch, that our churches, palaces, &c. are now wholly built after the antique. *Civil Architecture* may be distinguished, with regard to the several periods or states of it, into the antique, ancient, gothic, modern, &c. Another division of *Civil Architecture* arises from the different proportions which the different kinds of buildings rendered necessary, that we might have some suitable for every purpose, according to the bulk, strength, delicacy, richness, or simplicity required.

Hence arose five orders, all invented by the ancients at different times, and on different occasions, viz. Tuscan, Doric, Ionic, Corinthian, and Composite. The Gothic Architecture may also be mentioned here, for it is perfectly distinct both from the Grecian and Roman style, although derived from the latter. [*To be continued.*]

CLOTHING, NATURAL AND ARTIFICIAL.—The covering of wool and feathers, which nature has provided for the inferior classes of animals, has a property of conducting heat very imperfectly; and hence it has the effect of keeping the body cool in hot weather, and warm in cold weather. The heat which is produced by powers provided in the animal economy within the body, has a tendency, when in a cold atmosphere, to escape faster than it is generated; the covering being a non-conductor, intercepts it, and keeps it confined. Man is endowed with faculties which enable him to fabricate for himself covering similar to that with which nature has provided other animals. Clothes are generally composed of some light non-conducting substances, which protect the body from the inclement heat or cold of the external air. In summer, clothing keeps the body cool, and in winter warm. Woollen substances are worse conductors than those composed of cotton or linen. A flannel shirt more effectually intercepts heat than a linen or a cotton one; and whether in warm or in cold climates, attains the end of clothing more effectually.

If several pieces of cloth, of the same size and quality, but of different colors, black, blue, green, yellow, and white, be thrown on the surface of snow in clear daylight, but especially in sunshine, it will be found that the black cloth will quickly melt the snow beneath it, and sink downwards. The blue will do the same, but less rapidly; the green still less so; the yellow slightly; and the white not at all. We see, therefore, that the warmth or coolness of clothing depends as well on its color as its quality. A white dress, or one of a light color, will always be cooler than one of the same quality of a dark color, and especially so in clear weather, when there is much sunshine. A white and light color reflects heat copiously, and absorbs little, while a black and dark color absorbs copiously and reflects little. From this we see that experience has supplied the place of science in directing the choice of clothing. The use of light colors always prevail in summer, and that of dark colors in winter.

The scheme authorized by an act of the last session for forming the CAPE FEAR AND YADKIN RAILROAD, is abandoned by the subscribers in Wilmington and its vicinity. Dr. Wm. P. Hort, one of the Commissioners for receiving subscriptions to it, informs the subscribers that he is now ready to pay them back the money deposited on their shares, after deducting 12 per cent. for disbursements, the inhabitants of the western counties having failed to subscribe *a cent* towards effecting the proposed object.

The proposed Central Railroad, also authorized by an act of the same body, may also be considered as abandoned for the present. We hope, hereafter, when Mr. Clay's land bill shall become a law, that both schemes will be effected. At present there is too little capital and public spirit in North Carolina, unaided by Government, to effect any great scheme of internal improvement. In the mean time, we trust that enterprising individuals will continue to prosecute and complete smaller works.—[Raleigh Register, May 7.]

Pensacola Canal.—The route of the proposed canal from Mobile to Pensacola has been surveyed, and the company have arrived at the latter place. The particulars, however, are not made public.

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* Barton's Medical Botany, vol. 2, p. 14.

BABBAGE
ON THE
ECONOMY OF MANUFACTURES.

INTRODUCTION.

The object of the present volume is to point out the effects and the advantages which arise from the use of tools and machines; to endeavor to classify their modes of action; and to trace both the causes and the consequences of applying machinery to supersede the skill and power of the human arm.

A view of the mechanical part of the subject will, in the first instance, occupy our attention, and to this the first section of the work will be devoted. The first chapter of the section will contain some remarks on the general sources from whence the advantages of machinery are derived, and the succeeding nine chapters will contain a detailed examination of principles of a less general character. The eleventh chapter contains numerous subdivisions, and is important from the extensive classification it affords of the arts in which copying is so largely employed. The twelfth chapter, which completes the first section, contains a few suggestions for the assistance of those who propose visiting manufactories.

The second section, after an introductory chapter on the difference between *making* and *manufacturing*, will contain, in the succeeding chapters, a discussion of many of the questions which relate to the political economy of the subject. It was found that the domestic arrangement, or interior economy of factories, was so interwoven with the more general questions, that it was deemed unadvisable to separate the two subjects. The concluding chapter of this section, and of the work itself, relates to the future prospects of manufactures, as arising from the application of science.

SOURCES OF THE ADVANTAGES ARISING FROM MACHINERY AND MANUFACTURES.

1. There exists, perhaps, no single circumstance which distinguishes our country (England) more remarkably from all others, than the vast extent and perfection to which we have carried the contrivance of tools and machines for forming those conveniences, of which so large a quantity is consumed by almost every class of the community. The amount of patient thought, of repeated experiment, of happy exertion of genius, by which our manufactures have been created and carried to their present excellence, is scarcely to be imagined. If we look around the rooms we inhabit, or through those storehouses of every convenience, of every luxury that man can desire, which deck the crowded streets of our larger cities, we shall find in the history of each article, of every fabric, a series of failures which have gradually led the way to excellence; and we shall notice, in the art of making even the most insignificant of them, processes calculated to excite our admiration by their simplicity, or to rivet our attention by their unlooked-for results.

2. The accumulation of skill and science which has been directed to diminish the difficulty of producing manufactured goods, has not been beneficial to that country alone in which it is concentrated; distant kingdoms have participated in its advantages. The luxurious natives of the East,* and the ruder inhabitants of the African desert, are alike indebted to our looms. The produce of our factories has preceded even our most enterprising travellers.† The cotton of India is conveyed by British ships round half our planet, to be woven by British skill in the factories of Lancashire: it is again set in motion by British capital; and, transported to the very plains whereon it grew, is re-purchased by the lords of the soil which gave it birth, at a cheaper price than that at which their coarser machinery enables them to manufacture it themselves.*

3. The large proportion of the population of this country, who are engaged in manufactures, appears from the following table, deduced from a statement in an Essay on the Distribution of Wealth, by the Rev. R. Jones:

For every hundred persons employed in Agriculture, there are,

	Agriculturists.	Non-Agriculturists.
In Italy -	100 - -	31
In France -	100 - -	50
In England -	100 - -	200

The fact that the proportion of non-agricultural to agricultural persons is continually increasing, appears both from the Report of the Committee of the House of Commons upon Manufacturers' Employment, July, 1830, and also from the still later evidence of the last census, from which document the annexed table of the increase of population in our great manufacturing towns has been deduced.

Increase of population per cent.:

Names of Places.	1801 to 1811.	1811 to 1821.	1821 to 1831.	Total. 1801 to 1831.
Manchester,	22	40	47	151
Glasgow,	30	46	38	161
Liverpool,†	26	31	44	138
Nottingham,	19	18	25	75
Birmingham,	16	24	33	90

Thus, in three periods of ten years each, during each of which the general population of the country has increased about 15 per cent., or nearly 51 per cent. upon the whole period of thirty years, the population of these towns has, on the average, increased 123 per cent. After this statement, the vast importance to the well-being of this country, of making the interests of its manufactures well understood and attended to, needs no farther argument.

4. The advantages which are derived from machinery and manufactures seem to arise principally from three sources, viz.: The addition which they make to human power; The economy they produce of human time; The conversion of substances apparently common and worthless into valuable products.

5. *Of additions to human power.* With respect to the first of these causes, the forces derived from wind, from water, and from steam, present themselves to the mind of every one; these are, in fact, additions to human power, and will be considered in a future page: there are, however, other sources of its increase, by which the animal force of the individual is itself made to act with far greater than its unassisted power; and to these we shall at present confine our observations. The construction of palaces, of temples, and of tombs, seems to have occupied the earliest attention of nations just entering on the career of civilization; and the enormous blocks of stone moved from their native repositories to minister to the grandeur or piety of the builders, have remained to excite the astonishment of their posterity long after the purposes of many of these records, as well as the names of their founders, have been forgotten. The different degrees of force necessary to move these ponderous masses will have varied according to the mechanical knowledge of the people employed in their transport; and that the extent of power required for this purpose is widely different under different circumstances will appear from the following experiment, which is related by M. Redelet, *Sur l'Art de Batir.*

A block of squared stone was taken for the subject of experiment:

1. Weight of stone - - - 1080 lbs.
2. In order to drag this stone along the floor of the quarry, roughly chiselled, it required a force equal to - - - - - 758
3. The same stone dragged over a floor of planks, required - - 652
4. The same stone placed on a platform of wood, and dragged over a floor of planks, required - 606
5. After soaping the two surfaces of wood which slid over each other, it required - - - 182
6. The same stone was now placed upon rollers of three inches diameter, when it required to put it in motion along the floor of the quarry - - - - 34
7. To drag it by these rollers over a wooden floor - - - 28
8. When the stone was mounted on a wooden platform, and the same rollers placed between that and a plank floor, it required - - 22

From this experiment, it results that the force necessary to move a stone along the roughly chiselled floor of its quarry is nearly two-thirds of its weight; to move it along a wooden floor, three-fifths: by wood upon wood, five-ninths; if the wooden surfaces are soaped, one-sixth; if rollers are used on the floor of the quarry, it requires one-thirty-second part of the weight; if they roll over wood, one-fortieth; and if they roll between wood, one-fiftieth of its weight. At each increase of knowledge, as well as on the contrivance of every new tool, human labor becomes abridged. The man who contrived rollers invented a tool by which his power was quintupled. The workman who first suggested the employment of soap, or grease, was immediately enabled to move, without exerting a greater effort, more than three times the weight he could before.*

6. *The economy of human time* is the next advantage of machinery in manufactures. So extensive and important is this effect, that we might, if we were inclined to generalize, embrace almost all the advantages under this single head; but the elucidation of principles of less extent will contribute more readily to a knowledge of the subject; and, as numerous examples will be presented to the reader in the ensuing pages, we shall restrict our illustrations upon this point.

As an example of the economy of time, the use of gunpowder in blasting rocks may be noticed. Several pounds of that substance may be purchased for a sum acquired by a few days' labor; yet when this is employed for the purpose alluded to, effects are frequently produced which could not, even with the best tools, be accomplished by other means in less than many months.

7. The art of using the diamond for cutting glass has undergone, within a few years, a very important improvement. A glazier's apprentice, when using a diamond set in a conical ferrule, as was always the practice about twenty years since, found great difficulty in acquiring the art of using it with certainty, and at the end of a seven years' apprenticeship many were found but indifferently skilled in its employment. This arose from the difficulty of finding the precise angle at which the diamond cuts, and of guiding it along the glass at the proper inclination when that angle is found. Almost the whole of the time consumed, and of the glass destroyed, in acquiring the art of cutting glass, may now be saved by the use of an improved tool. The gem is set in a small piece of squared brass, with its edge nearly parallel to one side of the square. A person skilled in its use now files away one side of the brass, until, by trial, he finds that the diamond will make a clean cut when guided by keeping this edge pressed against a ruler. The diamond and its mounting are now attached to a stick similar to a pencil, by means of a swivel allowing a small angular motion. Thus the merest tyro at once applies the cutting edge at the proper angle, by press-

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* The Bandana handkerchiefs manufactured at Glasgow have long superseded the genuine ones, and are now consumed in large quantities both by the natives and Chinese.—[Crawfurd's Indian Archipelago, vol. iii. p. 505.]

† Captain Clapperton, when on a visit at the court of the Sultan Bello, states that "provisions were regularly sent me from the Sultan's table on pewter dishes with the London stamp; and I even had a piece of meat served up on a white wash-hand basin of English manufacture."—[Clapperton's Journey, p. 88.]

* At Calicut, in the East Indies, (whence the cotton cloth called calico derives its name,) the price of labor is one seventh of that in England, yet the market is supplied from British looms.

† Liverpool, though not itself a manufacturing town, has been placed in this list, from its great connection with Manchester, of which it is the port.

* So sensible are the effects of grease in diminishing friction that the drivers of sledges in Amsterdam, on which heavy goods are transported, carry in their hand a rope soaked in tallow which they throw down from time to time before the sledge, in order that it may, by passing over the rope, become greased.

ing the side of the brass against a ruler; and even though the part he holds in his hand should deviate a little from the required angle, it communicates no irregularity to the position of the diamond, which rarely fails to do its office when thus employed.

The relative hardness of the diamond, in different directions, is a singular fact. An experienced workman, on whose judgment I can rely, informed me that he had seen a diamond ground with diamond powder on a cast iron mill for three hours without its being at all worn, but that, changing its direction with reference to the grinding surface, the same edge was ground down.

8. *Employment of materials of little value.* The skins used by the goldbeater are produced from the offal of animals. The hoofs of horses and cattle and other horny refuse, are employed in the production of the prussiate of potash, that beautiful yellow crystalized salt which is exhibited in the shops of some of our chemists. The worn out saucepans and tin ware of our kitchens, when beyond the reach of the tinker's art, are not utterly worthless. We sometimes meet carts loaded with old tin kettles and worn out iron coal-scuttles, traversing our streets. These have not yet completed their useful course; the less corroded parts are cut into strips, punched with small holes, and varnished with a coarse black varnish for the use of the trunk-maker, who protects the edges and angles of his boxes with them; the remainder are conveyed to the manufacturing chemists in the outskirts of the town, who employ them, in conjunction with pyroligneous acid, in making a black die for the use of calico printers.

9. *Of tools.* The difference between a *tool* and a *machine* is not capable of very precise distinction; nor is it necessary, in a popular explanation of those terms, to limit very strictly their acceptation. A *tool* is usually more *simple* than a machine; it is generally used with the hand, whilst a machine is frequently moved by animal or steam power. The simpler *machines* are often merely one or more *tools* placed in a frame, and acted on by any moving power. In pointing out the advantages of *tools*, we shall commence with some of the simplest.

10. To arrange twenty thousand needles thrown promiscuously into a box, mixed and entangled with each other in every possible direction, in such a form that they shall be all parallel to each other, would, at first sight, appear a most tedious occupation; in fact, if each needle were to be separated individually, many hours must be consumed in the process. Yet this is an operation which must be performed many times in the manufacture of needles; and it is accomplished in a few minutes by a very simple *tool*; nothing more being requisite than a small flat tray of sheet iron, slightly concave at the bottom. The needles are placed in it and shaken in a peculiar manner, by throwing them up a very little, and giving at the same time a slight longitudinal motion to the tray. The shape of the needles assists their arrangement; for if two needles cross each other, (unless, which is exceedingly improbable, they happen to be precisely balanced,) they will, when they fall on the bottom of the tray, tend to place themselves side by side, and the hollow form of the tray assists this disposition. As they have no projection in any part to impede this tendency, or to entangle each other, they are, by continually shaking, arranged lengthwise, in three or four minutes. The direction of the shake is now changed, the needles are but little thrown up, but the tray is shaken endways; the result of which is, that in a minute or two the needles which were previously arranged endways become heaped up in a wall, with their ends against the extremity of the tray. They are now removed by hundreds at a time, by raising them with a broad iron spatula, on which they are retained by the fore-finger of the left hand. During the progress of the needles towards their finished state, this parallel arrangement must be repeated many times; and unless a cheap and expeditious method had been devised, the expense of manufacturing needles would have been considerably enhanced.

11. Another process in the art of making needles furnishes an example of one of the simplest contrivances which can come under the denomination of a *tool*. After the needles have been arranged in the manner just described, it is necessary to separate them into two parcels, in order that their points may be all in one direction. This is usually done by women and children. The needles are placed sideways in a heap, on a table, in front of each operator, just as they are arranged by the process above described. From five to ten are rolled towards this person by the fore-finger of the left hand; this separates them a very small space from each other, and each in its turn is pushed lengthwise to the right or to the left, according as its eye is on the right or the left hand. This is the usual process, and in it every needle passes individually under the finger of the operator. A small alteration expedites the process considerably: the child puts on the fore-finger of its right hand a small cloth cap or finger-stall, and rolling out of the heap from six to twelve needles, he keeps them down by the fore-finger of the left hand, whilst he presses the fore-finger of the right hand gently against their ends; those which have the points towards the right hand stick into the finger-stall; and the child, removing the finger of the left hand, slightly raises the needles sticking into the cloth, and then pushes them towards the left side. Those needles which had their eyes on the right hand do not stick into the finger cover, and are pushed to the heap on the right side previously to the repetition of this process. By means of this simple contrivance each movement of the finger, from one side to the other, carries five or six needles to their proper heap; whereas, in the former method, frequently only one was moved, and rarely more than two or three were transported at one movement to their place.

12. Various operations occur in the arts in which the assistance of an additional hand would be a great convenience to the workman, and in these cases tools or machines of the simplest structure come to our aid; vices of different forms in which the material to be wrought is firmly grasped by screws, are of this kind, and are used in almost every workshop; but a more striking example may be found in the trade of the nail-maker.

Some kinds of nails, such as those used for defending the soles of coarse shoes, called hobnails, require a particular form of the head, which is made by the stroke of a die. The workman holds the red-hot rod of iron out of which he forms them in his left hand; with his right hand he hammers the end of it into a point, and cutting the proper length almost off, bends it nearly at right angles. He puts this into a hole of a small stake-iron, immediately under a hammer connected with a treadle, which has a die sunk in its surface corresponding to the intended form of the head; and having given one part of the form to the head by the small hammer in his hand, he moves the treadle with his foot, which disengages the other hammer, and completes the figure of the head; the returning stroke produced by the movement of the treadle striking the finished nail out of the hole in which it was retained. Without this substitution of his foot for another hand, the workman would, probably, be obliged to heat the nails twice over.

13. Another, although fortunately a less general substitution of tools for human hands, is used to assist the labor of those who are deprived by nature, or by accident, of some of their limbs. Those who have had an opportunity of examining the beautiful contrivances for the manufacture of shoes by machinery, which we owe to the fertile invention of Mr. Brunel, must have noticed many instances in which the workmen were enabled to execute their task with precision, although laboring under the disadvantages of the loss of an arm or a leg. A similar instance occurs at Liverpool, in the Institution for the Blind, where a machine is used by those afflicted with blindness, for weaving sash-lines; it is said to have been the invention of a person suffering under that calamity. Other instances might be mentioned of contrivances for the use, the amusement, or the instruction of the wealthier classes, who labor under the same natural disadvantages. These triumphs of skill and ingenuity deserve a double portion of our admiration when applied to mitigate the severity of natural or accidental misfortune—when they supply the rich with occupation and knowledge—when they relieve the poor from the additional evils of poverty and want.

15. *Division of the objects of machinery.* There exists a natural, although, in point of number, a very unequal division amongst machines: they may be classed as, 1st, Those which are employed to produce power; and as, 2dly, Those which are intended merely to transmit force and execute work. The first of these divisions is of great importance, and is very limited in the variety of its species, although some of those species consist of numerous individuals.

Of that class of mechanical agents by which motion is transmitted—the lever, the pulley, the wedge, and many others—it has been demonstrated that no power is gained by their use, however combined. Whatever force is applied at one point can only be exerted at some other, diminished by friction and other incidental causes; and it has been farther proved, that whatever is gained in the rapidity of execution is compensated by the necessity of exerting additional force. These two principles, long since placed beyond the reach of doubt, cannot be too constantly borne in mind. But in limiting our attempts to things which are possible, we are still, as we hope to show, possessed of a field of inexhaustible research, and of advantages derived from mechanical skill, which have but just begun their influence on our arts, and may be pursued without limit—contributing to the improvement, the wealth, and the happiness of our race.

15. Of those machines by which we produce power, it may be observed, that although they are to us immense acquisitions, yet in regard to two of the sources of this power—the force of wind and of water—we merely make use of bodies in a state of motion by nature; we change the directions of their movement, in order to render them subservient to our purposes, but we neither add to nor diminish the quantity of motion in existence. When we expose the sails of a wind-mill obliquely to the gale, we check the velocity of a small portion of the atmosphere, and convert its own rectilinear motion into one of rotation in the sails; we thus change the direction of force, but we create no power. The same may be observed with regard to the sails of a vessel: the quantity of motion given by them is precisely the same as that which is destroyed in the atmosphere. If we avail ourselves of a descending stream to turn a water-wheel, we are appropriating a power which nature may appear, at first sight, to be uselessly and irrecoverably wasting, but which, upon due examination, we shall find she is ever repairing by other processes. The fluid which is falling from a higher to a lower level, carries with it the velocity due to its revolution with the earth at a greater distance from its centre. It will, therefore, accelerate, although to an almost infinitesimal extent, the earth's daily rotation. The sum of all these increments of velocity, arising from the descent of all the falling waters on the earth's surface, would in time become perceptible, did not nature, by the process of evaporation, convey the waters back to their sources; and thus, again, by removing matter to a greater distance from the centre, destroy the velocity generated by its previous approach.

16. The force of vapor is another fertile source of moving power; but even in this case it cannot be maintained that power is created. Water is converted into elastic vapor by the combustion of fuel. The chemical changes which thus take place are constantly increasing

the atmosphere by large quantities of carbonic acid and other gasses noxious to animal life. The means by which nature decomposes or reconverts these elements into a solid form, are not sufficiently known: but if the end could be accomplished by mechanical force, it is almost certain that the power necessary to produce it would at least equal that which was generated by the original combustion. Man, therefore, does not create power; but availing himself of his knowledge of nature's mysteries, he applies his talents to diverting a small and limited portion of her energies to his own wants: and, whether he employs the regulated action of steam, or the more rapid and tremendous effects of gunpowder, he is only producing on a small scale compositions and decompositions which nature is incessantly at work in reversing, for the restoration of that equilibrium which we cannot doubt is constantly maintained throughout even the remotest limits of our system. The operations of man participate in the character of their Author; they are diminutive, but energetic during the short period of their existence: whilst those of nature, acting over vast spaces and unlimited by time, are ever pursuing their silent and resistless career.

17. In stating the broad principle, that all combinations of mechanical art can only augment the force communicated to the machine at the expense of the time employed in producing the effect, it might perhaps be imagined that the assistance derived from such contrivances is small. This is, however, by no means the case; since the almost unlimited variety they afford enables us to exert to the greatest advantage whatever force we employ. There is, it is true, a limit beyond which it is impossible to reduce the power necessary to produce any given effect, but it very seldom happens that the methods first employed at all approach that limit. In dividing the knotted root of a tree for the purposes of fuel, how very different will be the time consumed, according to the nature of the tool made use of! The hatchet, or the adze, will divide it into small parts, but will consume a large portion of the workman's time. The saw will answer the same purpose more effectually and more quickly. This, in its turn, is superseded by the wedge, which rends it in a still shorter time. If the circumstances are favorable, and the workman skilful, the time and expense may be still farther reduced by the use of a small quantity of gunpowder exploded in holes judiciously placed in the block.

18. When a mass of matter is to be removed, a certain force must be expended; and upon the proper economy of this force the price of transport will depend. A country must, however, have reached a high degree of civilization before it will have approached the limit of this economy. The cotton of Java is conveyed in junks to the coast of China; but from the seed not being previously separated, three-quarters of the weight thus carried is not cotton. This might, perhaps, be justified in Java by the want of machinery to separate the seed, or by the relative cost of the operation in the two countries. But the cotton itself, as packed by the Chinese, occupies three times the bulk of an equal quantity shipped by Europeans for their own markets. Thus the freight of a given quantity of cotton costs the Chinese nearly twelve times the price to which, by a proper attention to mechanical methods, it might be reduced.*

ACCUMULATING POWER.

19. Whenever the work to be done requires more force for its execution than can be generated in the time necessary for its completion, recourse must be had to some mechanical method of preserving and condensing a part of the power exerted previously to the commencement of the process. This is most frequently accomplished by a fly-wheel, which is in fact nothing more than a wheel having a very heavy rim, so that the greater part of its weight is near the circumference. It requires great power applied for some time to put this into rapid motion; but when moving with considerable velocity, the effects are exceedingly powerful, if its force be concentrated upon a small object. In some of the iron works where the power of the steam-engine is a little too small for the rollers which it drives, it is usual to set the engine at work a short time before the red-hot iron is ready to be removed from the furnace to the rollers, and to allow it to work with great rapidity until the fly has acquired a velocity rather alarming to those unused to such establishments. On passing the softened mass of iron through the first groove, the engine receives a great and very perceptible check; and its speed is diminished at the next and at each succeeding passage, until the iron bar is reduced to such a size that the ordinary power of the engine is sufficient to roll it.

20. The powerful effect of a large fly-wheel, when its force can be concentrated in a point, was curiously illustrated at one of the largest of our manufactories. The proprietor was showing to a friend the method of punching holes in iron plates for the boilers of steam-engines. He held in his hand a piece of sheet-iron, three-eighths of an inch thick, which he placed under the punch. Observing, after several holes had been made, that the punch made its perforations more and more slowly, he called to the engine-man to know what made the engine work so sluggishly, when it was found that the fly-wheel and punching apparatus had been detached from the steam-engine just at the commencement of his experiment.

21. Another mode of accumulating power arises from lifting a weight and then allowing it to fall. A man, even with a heavy hammer, might strike repeated blows upon the head of a pile without producing any effect. But if he raises a much heavier hammer to a much greater height, its fall, though far less frequently repeated, will produce the desired effect.

REGULATING POWER.

22. Uniformity and steadiness in the rate in which machinery works are essential both for its effect and its duration. That beautiful contrivance, the governor of the steam-engine, must immediately occur to all who are familiar with that admirable machine. Wherever the increased speed of an engine would lead to injurious or dangerous consequences, it is applied; and is equally the regulator of the water-wheel which drives a spinning-jenny, or of the windmills which drain our fens. In the dock-yard at Chatham, the descending motion of a large platform, on which timber is raised, is regulated by a governor; but as the weight is very considerable, the velocity of this governor is still farther checked by causing its motion to take place in water.

The regularity of the supply of fuel to the fire under the boilers of steam-engines is another mode of contributing to the uniformity of their rate, and also economizes the consumption of coal. Several patents have been taken out for methods of regulating this supply: the general principle being to make the engine supply the fire by means of a hopper, with small quantities of fuel at regular intervals, and to diminish this supply when it works quickly. One of the incidental advantages of this plan is, that by throwing on a very small quantity of coal at a time, the smoke is almost entirely consumed. The dampers of ash-pits and chimneys are also, in some cases, connected with machines in order to regulate their speed.

23. Another contrivance for regulating the effect of machinery consists in a vane or a fly, of little weight, but presenting a large surface. This revolves rapidly, and soon acquires a uniform rate, which it cannot greatly exceed, because any addition to its velocity produces a much greater addition to the resistance it meets with from the air. The interval between the strokes on the bell of a clock is regulated by this means; and the fly is so contrived, that this interval may be altered by presenting the arms of it more or less obliquely to the direction in which they move. This kind of fly, or vane, is generally used in the smaller kinds of mechanism, and, unlike the heavy fly, it is a destroyer instead of a preserver of force. It is the regulator used in musical boxes, and in almost all mechanical toys.

24. Another very beautiful contrivance for regulating the number of strokes made by a steam-engine, is used in Cornwall: it is called the *cataract*, and depends on the time required to fill a vessel plunged in water, the opening of the valve through which the fluid is admitted being adjustable at the will of the engine-man.

INCREASE AND DIMINUTION OF VELOCITY.

25. The fatigue produced on the muscles of the human frame does not altogether depend on the actual force employed in each effort, but partly on the frequency with which it is exerted. The exertion necessary to accomplish every operation consists of two parts: one of these is the expenditure of force which is necessary to drive the tool or instrument; and the other is the effort required for the motion of some limb of the animal producing the action. If we take, as an example, the act of driving a nail into a piece of wood, the first of these is the *propelling* the hammer head against the nail; the other is, *raising* the arm in order to lift the hammer. If the weight of the hammer is considerable, the former part will cause the greatest portion of the exertion. If the hammer is light, the exertion of *raising* the arm will produce the greatest part of the fatigue. It does, therefore, happen that operations requiring very trifling force, if frequently repeated, will tire more effectually than more laborious work. There is also a degree of rapidity beyond which the action of the muscles cannot be pressed.

26. The most advantageous load for a porter who carries wood up stairs on his shoulders, has been investigated by M. Coulomb; but he found from experiment that a man walking up stairs without any load, and raising his burden by means of his own weight in descending, could do as much work in one day as four men employed in the ordinary way with the most favorable load.

27. The proportion between the velocity with which men or animals move, and the weights they carry, is a matter of considerable importance, particularly in military affairs. It is also of great importance for the economy of labor, to adjust the weight of that part of the animal's body which is moved, the weight of the tool it urges, and the frequency of repetition of these efforts, so as to produce the greatest effect. An instance of the saving of time, by making the same motion of the arm execute two operations instead of one, occurs in the simple art of making the tags of boot-laces: they are formed out of very thin, tinned, sheet-iron, and were formerly cut out of long strips of that material into pieces of such a breadth that when bent round they just enclosed the lace. Two pieces of steel have recently been fixed to the side of the shears, by which each piece of tinned-iron, as soon as it is cut, is bent into a semi-cylindrical form. The additional power required for this operation is almost imperceptible; and it is executed by the same motion of the arm which produces the cut. The work is usually performed by women and children, and with the improved tool more than three times the quantity of tags is produced in a given time.*

Whenever the work is itself light, it becomes necessary, in order to economize time, to increase the velocity. Twisting the fibres of wool by the fingers would be a most tedious operation: in the common spinning-wheel the velocity of the foot is moderate, but by a very simple contrivance that of the thread is most rapid. A piece of cat-gut passing round a large wheel, and then round a small spindle, effects this change. This contrivance is common to a multitude of machines, some of them very simple. In large shops for the retail of ribands, it is necessary at short intervals to "take stock," that is, to measure and re-wind every piece of

* Crawfurd's Indian Archipelago.

* Transactions of the Society of Arts, 1826.

riband, an operation which, even with this mode of shortening it, is sufficiently tiresome, but without it would be almost impossible from its expense. The small balls of sewing-cotton, so cheap and so beautifully wound, are formed by a machine on the same principle, and but a few steps more complicated.

28. In turning from the smaller instruments in frequent use to the larger and more important machines, the economy arising from the increase of velocity becomes more striking. In converting cast into wrought iron, a mass of metal of about a hundred weight is heated almost to a white heat, and placed under a heavy hammer moved by water or steam power. This is raised by a projection on a revolving axis; and if the hammer derived its momentum only from the space through which it fell, it would require a considerably greater time to give a blow. But as it is important that the softened mass of red hot iron should receive as many blows as possible before it cools, the form of the cam or projection on the axis is such, that, the hammer, instead of being lifted to a small height, is thrown up with a jerk, and almost the instant after it strikes against a large beam, which acts as a powerful spring, and drives it down on the iron, with such velocity that by these means about double the number of strokes can be made in a given time. In the smaller tilt-hammers, this is carried still farther: by striking the tail of the tilt-hammer forcibly against a small steel anvil, it rebounds with such velocity that from three to five hundred strokes are made in a minute.

29. In the manufacture of scythes, the length of the blade renders it necessary that the workman should move readily, so as to bring every part on the anvil in quick succession. This is effected by placing him in a seat suspended by ropes from the ceiling: so that he is enabled, with little bodily exertion, by pressing his feet against the block which supports the anvil, to vary his distance to any required extent. In the manufacture of anchors, an art in which this contrivance is of still greater importance, it has only been recently applied.

30. The most frequent reason for employing contrivances for diminishing velocity arises from the necessity of overcoming great resistances with small power. Systems of pulleys, the crane, and many other illustrations, might also here be adduced; but they belong more appropriately to some of the other causes, which we have assigned for the advantages of machinery. The common smoke-jack is an instrument in which the velocity communicated is too great for the purpose required: and it is transmitted through wheels which reduce it to a more moderate rate.

EXTENDING THE TIME OF ACTION OF FORCES.

31. This is one of the most common and most useful of the employments of machinery. The half minute which we daily devote to the winding up of our watches is an exertion of labor almost insensible, yet by the aid of a few wheels its effect is spread over the whole twenty-four hours. In our clocks, this extension of the time of action of the original force impressed is carried still farther; the better kind usually require winding up once in eight days, and some are occasionally made to continue in action during a month or even a year. Another familiar illustration may be noticed in our domestic furniture; the common jack, by which our meat is roasted, is a contrivance to enable the cook in a few minutes to exert a force which the machine retails out during the succeeding hour in turning the loaded spit, thus enabling her to bestow her undivided attention on the other important duties of her vocation. A great number of automatons, and mechanical toys moved by springs, may be classed under this division.

32. A small moving power, in the shape of a jack or a spring with a train of wheels, is often of great convenience to the experimental philosopher, and has been used with advantage in magnetic and electric experiments, where the

METEOROLOGICAL RECORD, KEPT IN THE CITY OF NEW-YORK,

For the Week ending Monday, May 13, 1833, inclusive.

[Communicated for the American Railroad Journal and Advocate of Internal Improvements.]

Date.	Hour.	Thermometer.	Barometer.	Winds.	Strength of Wind.	Clouds from what direction.	Weather and Remarks.
Tuesday, May 7	6 a. m.	54	30·13	sw	light	sw	fair—smoky
	10	64	30·13	s			
	3 p. m.	76	30·06				
	6	74	29·98	variable	fresh		cloudy—thunder storm
	10	65	30·05		light		rain [from 7 to 8
Wednesday, " 8	6 a. m.	63	30·00	sw			cloudy
	10	68	29·95	sse		s	fair
	3 p. m.	78	29·92				
	6	71	29·89	wnw		wnw	cloudy—showers
	10	67	29·91				
Thursday, " 9	6 a. m.	64	29·97	nnw		w	fair
	10	77	30·00	nne			
	2 p. m.	78	30·01	e	fresh		
	6	60	30·09	ese			
	10	54	30·17				
Friday, " 10	6 a. m.	51	30·20	se	moderate		
	10	60	30·23	ese	fresh		
	2 p. m.	63	30·21	ene	strong	sw	cloudy
	6	52	30·20				—rainy
	10	51	30·20				
Saturday, " 11	6 a. m.	54	30·12	ene—e	moderate	s	rainy
	10	56	30·12	se—sse	fresh	sw	—thick scuds fr sw
	2 p. m.	63	30·09	s			cloudy—
	6	63	30·09				
	10	62	30·10	sse			fair
Sunday, " 12	6 a. m.	63	30·10			{wnw / sw}	cloudy—rainy—
	10	66	30·11		fresh		
	2 p. m.	70	30·06				fair—cloudy—
	6	65	30·03				
	10	63	30·03				—fair
Monday, " 13	6 a. m.	63	30·02		moderate		cloudy—fair
	10	68	30·01		light		—fair
	2 p. m.	74	30·01				showers
	6	65	30·00				
	10	63	30·03				

Average temperature of the week, 64.2.

rotation of a disk of metal or other body is necessary, thus allowing to the inquirer the unimpeded use of both his hands. A vane connected by a train of wheels, and set in motion by a heavy weight, has also on some occasions been employed in chemical processes, to keep a solution in a state of agitation. Another object, to which a similar apparatus may be applied, is the polishing of small specimens of minerals for optical experiments.

Self-Steering Ship. [From Elements of Physics, or Natural Philosophy, General and Medical.]

It is possible to make a ship or boat steer itself, by placing a powerful vane on the mast head, and connecting it with the tiller-ropes by two projecting arms from its axis. If it were desired to make the ship sail directly before the wind, the tiller-ropes would be fixed to the vane so that the helm should be in the middle position, when the vane were pointing directly forward; should the vessel then from any cause deviate from her course, the vane, by its changed position with respect to her, would have produced a corresponding change on the position of the helm, and just such as to bring her back to her course. Again, it is evident that, by adjusting such a vane and rudder to each other, in different ways, any other desired course might be obtained, and which would alter only with the wind. The vane would require to be of large size to have the necessary power—a wide hoop, for instance, with canvass stretched upon it; and the rudder, that it might turn with little force, would be hung on an axis passed through its middle, instead of, as usual, by hinges at one edge. Cases have occurred where shipwrecked persons might have sent intelligence of their disaster to a distant coast, by a small vessel, or even a block of wood, fitted up in this way; and the method might sometimes save an additional hand in a boat's crew. It admits also of other applications, particularly in war.

As fluids act on surfaces, in a direction perpendicular to them, the water on the right side of a ship's bow is always pressing towards the left side; but owing to the equivalent and contrary pressure there, the ship holds her course evenly between the two, or straight forwards. When a ship, however, owing to a side wind, lies over, or *heels*, as it is called, that side of the bow which sinks most is more pressed than the other; and were it not for a counteracting inclination of the rudder then made, constituting what is called *weather helm*, the ship's head would come round to the wind. Now, ships so rarely have the wind exactly astern, that, to diminish the almost constant necessity for weather helm, the mast or masts, and consequently the mass of the sails, are placed more towards the bow than the stern.

Again, because the bow of a ship is oblique downwards as well as sideways, the water, when she moves, is constantly tending to lift the bow; hence, when a vessel is dragged by a low horizontal rope, as in the case of a boat attached to a sailing ship's stern, or is moved by paddle-wheels, like steamboats, the bow rises much out of the water, and the stern sinks in the hollow or furrow of the track: but when she is driven by sails, as these are high on the mast, and are acting therefore on a long lever to depress the bow, the two opposing tendencies just balance each other, and the vessel sails evenly along.

The form of the fore part of a ship has less influence upon her speed of sailing, than the form of the hind part from the middle to the stern, called the *run*. When a ship is at rest, there is of course as much forward pressure of water about the stern as of backward pressure on the bow; but when she sails, she is running away from the propelling pressure, and is increasing the resisting pressure. A gradual tapering of the hind part therefore, or a *fine run*, as it is called, which allows the water to apply itself readily to it, as it passes along, must quicken much the rate of sailing. A tree, or the tapering mast of a ship, can be drawn through the water the most easily with the large end foremost.

RICE PAPER.—The fine and beautiful tissue brought from China and Calcutta, and employed under the name of *rice paper*, is far from being an artificial substance fabricated from rice or any other farinaceous material. By holding a specimen of it between the eye and a clear light, it will be seen to consist of a vegetable tissue, composed of cellules so exactly similar, and so perfect, that no preparation of a paper could be possibly made to acquire.

It is now known to be made of the internal part of the *Œschynomene paludosa*, Roxburg,—a leguminous plant which grows abundantly on the marshy plains of Bengal, and on the borders of vast lakes between Calcutta and Hurdwart. It is a hardy plant, requiring much moisture for its perfect growth and duration. The stem rarely exceeds two inches in diameter, spreading extensively, but not rising to any great height.

The stems of this plant are brought in great quantities in Chinese junks, from the island of Formosa and other places, to China and Calcutta. These stems are cut into the lengths intended for the leaves or sheets, and then, by means of a very sharp and well tempered knife, about ten inches long and three inches wide, the pith is divided into thin circular plates, which, being pressed, furnish the leaves sold under the name of rice paper. The operation of cutting the leaves is very similar to that of cutting corks. The leaves are generally seven or eight inches long and five wide; some are even a foot long. Those which are not fit for drawing are colored for other purposes. Rice paper absorbs water, and swells so as to present an elevation, which continues after it becomes dry, and gives to the drawing a velvety appearance and a relief, which no other kind of paper produces.

Rice paper may, with care, be written upon, as the ink does not spread. The writing is glossy, showing some metallic surfaces.

Examined chemically, it seems to be analogous to the substance which Dr. John calls medulline. Treated with nitric acid, it forms oxalic acid.

The white and pure specimens are much used for drawings; the inferior are variously colored, and now extensively used in forming artificial flowers. In India, a pasteboard is made by cementing many leaves together, and of this hats are fabricated, which, covered with silk or other stuff, are firm and extremely light.

Rice paper was introduced into Europe about thirty years ago. The flowers which were first made of it sold at an exorbitant price. A single bouquet cost the Princess Charlotte of Wales £70 sterling.

From the quality of this paper, it may be most successfully employed in painting butterflies, flowers, birds, plants, and animals. For this purpose, the object is first sketched on common paper, which is then to be pasted on a card. The sketch must be of a deep black. On this the rice paper is fastened, and the painting effected with a pencil and fine colors. When executed in this way, by the most skilful hands, the pictures of butterflies, insects, &c. have been often mistaken for the animal itself pasted on paper. Rice paper has also been employed in lithography, with the most brilliant effect.

It is desirable for the purposes of art, that some aquatic plant should be found in our own climate whose pith is analogous to that of the Œschynomene. Is it not possible, also, to fabricate a paper, the tissue of which may absorb water, and furnish the relief which gives to rice paper its greatest value? —[Jour. des Connais. Usuelles, Fev. 1832.]

NEW-YORK AMERICAN.

MAY 11, 13, 14, 15, 16, 17—1833.

LITERARY NOTICES.

HISTORY OF ENGLAND; vol. III; by Sir JAS. McINTOSH; forming vol. 22, of Lardner's Cabinet Cyclopædia: *Philadelphia*, CAREY, LEA & BLANCHARD.—The hand that traced, in the pages now open before us, the instructive lessons which history, truly and philosophically written, reads to living men, was arrested in mid career by death; and even the close of the present volume, which brings us down to the reign of Elizabeth, is from another pen, from which all that remains to be written of the history of England is to proceed. We particularly lament that this work could not have been completed by Sir Jas. McIntosh; for it is one which by its comparative brevity will, as the world grows busier and busier which it seems to us to do, be more read than the larger histories; and the spirit in which it is commenced and thus far conducted, is such a one as men loving freedom and the rule of the laws, must approve.

In this volume of more than 300 pp., 200 are by McIntosh; and it is gratifying to be assured, as we are in a preliminary notice of the editor of the Cyclopædia, that the materials prepared by Sir James—and particularly the MSS. embodying his view of the revolution of 1688—have been purchased for, and will be used in, the completion of the history.

We quote the annexed extract as indicating the generous spirit and high moral feeling which pervade this history. It relates to a memorable period, and in the worst sense to a memorable man.

The duke of Alva was recalled from his deplorable administration of the Netherlands, where he boasted that in six years he had put to death 18,000 persons by the hands of the hangman. Vargas, his sanguinary instrument, when he arrived with his master at the frontier, looking back on the provinces which had endured his rod for nine years, exclaimed, "There is a country lost by indulgence!" A degree of cruelty is conceivable which might altogether extinguish the spirit and resolution which resistance requires: but this extent of destruction, though it may doubtless be conceived, can hardly ever be practised. Tyrants are ignorant of the laws which limit their destructive power. Strangers to pity themselves, they know not its power over other men. Unbelievers in the force of moral indignation, it bursts upon them when they are least prepared. They know not that every new crime dissolves some link of that mutual trust between them and their accomplics or followers, without which assassins and robbers cannot act together. Men who must more and more distrust and abhor each other, and who are doomed to end in hating themselves, cannot always preserve the union and concert without which their malignity becomes powerless. The infirmities of human nature undermine the conspiracies of the wicked, perhaps, even more than they loosen the union of the good. No man was ever so consistently depraved as never to be visited by misgivings in a course of guilt which, save only the fellows of his crimes, renders all mankind his enemies, for whose constancy and fidelity he has no other security than a common criminality, which, brittle, as it is, has no force but against the virtuous; for, in their relations to each other, every villain must live in continual dread of fraud, treachery, destruction from his brethren in blood. The greater part of them, unripe in atrocity, must be often unmanned by cowardice, and appalled by fearful anticipations that they are doomed one day to regard their own dispositions with some degree of that abhorrence which they must sometimes read in the eyes of their fellow-creatures. They at last fall unpitied victims to the eternal law which dooms the vices to perpetual discords, arms the virtues with that power which flows from unbroken harmony, and has decreed that peace and faith are blessings too sacred to be allotted to any except the good.

As an instance of impartial and severe scrutiny into the glosses with which the conduct of kings is too often varnished over by the pen of the historian, we would refer to the brief but conclusive examination of the question of premeditation, imputed and here fixed upon Charles IX of France, in respect of the massacre of St. Bartholemew.

In the appendix, a very curious letter is published, taken from Murden's State Papers. It is from Mary Queen of Scots to Elizabeth, and embodies certainly as it strikes us, all that female malice could devise to wound another woman and a queen. It is in French; and though written by a Queen to a Queen, cannot be decently published in a newspaper.

It is doubtful whether it ever reached Elizabeth, having been found among the Burleigh papers; but if it did, every line, as is well remarked by the editor, "must have been a poinard to her heart, and would alone account for her pursuing the writer to death.

JOHN MILTON, HIS LIFE AND TIMES, &c. &c. with an Appendix, containing Animadversions upon Dr. Johnson's Life of Milton: by JOSEPH IVIMEY, author of the 'History of the English Baptists.' 1 vol. New York, D. APPLETON.—The aim of the writer of this Life of Milton, is chiefly to vindicate his character as "a patriot, a Protestant, and a non-conformist:" and this is accomplished, and fortunately so, by means of considerable extracts from the prose writings of this sublimest of English poets. We should say, fortunately so, let who would have been the writer of a Life of Milton; for few can approach, in vigor and eloquence, the prose of Milton; but it is particularly fortunate in this instance for Mr. Ivimey is *not* a great master of style. He writes, moreover, somewhat intemperately, though frequently reprehending, especially in the Appendix, and in occasional passages or notes in the main narrative, others for that fault. But he writes with a warm love of Liberty, for devotion to which, he justly argues, that Milton was little liked, and most unjustiy dealt with by Johnson, and with a full appreciation of the genius and mighty power of the great Secretary of Cromwell, the unrivalled Epic Bard of England.

THE LIFE AND WRITINGS OF JOHN JAY; by his Son, WILLIAM JAY. 2 vols. 8vo. pp. 500. New-York, J. & J. HARPER.—We only received these volumes—precious we are sure they will be found, for they relate to a great, an able, and an honest man—yesterday; and can therefore only announce them this week, reserving to another occasion the remarks and extracts which their perusal, we are sure, will richly furnish forth. We add here only, that they are, as far as the paper and printing are concerned, worthily got up.

THE FRENCH LAW AND PRACTICE OF PATENTS FOR INVENTIONS, &c. by A. PERPIGNA: Paris.—This work, in English, is sent to us by *Wm. A. Colman*, of this city, who has been appointed the agent of the author, who keeps, and for some years has kept, an office in Paris, for obtaining and securing patents for distant applicants. The mode of proceeding, expense, &c. in order to obtain a patent in France, is set forth in this pamplet: and to so inventive a people as we are in mechanics, the information it furnishes cannot but be useful.

While referring to Mr. Colman, we take occasion to speak of two magnificent engravings of *Martin's*, which we saw at his rooms, representing scenes from Paradise Lost,—the one of "Satan in Council," the other a "View of Pandemnium." They are sublime in their conception, execution, and effect, and impress the mind most strongly.

ASMODEUS AT LARGE, by the author of Pelham, Eugene Aram, &c.—1 vol., Philadelphia, *Carey, Lea & Blanchard*.—The pieces collected in this volume appeared originally in successive numbers of the London New Monthly Magazine, edited by Mr. Bulwer, the writer of them. Extracts from

several of them, and the last entire, recording the ill ated love of "Julia," have been published in this paper—so that our readers have felt that the impassion-pen of the author of Eugene Aram has not lost its power in these sketches.

School of Cavalry, or System of Organization, Instruction, and Manœuvres, prepared for the Cavalry of the United States; by William Theobald Wolfe Tone, Lieut. 1st Regt. U. S. Artillery: second edition: *Georgetown, D. C.*, Jas. Thomas.—The recent institution of a cavalry corps as part of the standing military force of the United States, has very properly suggested this new edition of the ingenious work of the lamented Mr. Tone upon cavalry tactics; and as there is no work upon the subject yet adopted for the use of the corps, it is more than probable that the one before us written expressly for the cavalry service at a time when it was proposed to introduce that arm into our peace establishment several years since, will be temporarily, if not permanently adopted. It was compiled at the express request of the present Commander in Chief, out of the regulations and practice of the several armies of Europe, by an officer, who, after being educated in the imperial school of cavalry of St. Germain's, was employed for several years under Napoleon in the light horse and staff of the French armies; and who, both from training new levies, and crossing sabres with veteran troopers, had full opportunity to compare not only the theoretical systems of the several nations of Europe, but their practice in the field. The work is divided into three parts. The first contains a system of organization and formation in the field, proposed for the cavalry of the United States—including a nomenclature and explanation of the technical terms used in the service. The second contains the preliminary instruction which every cavalry recruit should receive before he is allowed to manœuvre with his corps; and the third gives a system of manœuvres proposed for the use of the corps to be raised. In the course of the work, the author takes occasion to investigate the principles upon which the manœuvres of cavalry are founded, as well as to analyze the elementary movements by which they are executed; and while he disclaims all pretensions for his work to the title of a complete course of instruction for a cavalry officer, he has given a compendium which must be invaluable, if the military information conveyed in it be but as sound as it is clearly and logically arranged. *

Traveller's Guide to the Middle and Northern States, and Canada; *M. Davison.*—This is the fifth edition, enlarged and improved, of Mr. Davison's useful little pocket companion. It is ornamented with a great number of engravings, and includes in its descriptions of places, routes, &c., a number of valuable historical notices, amusing legends, and interesting facts. It is for sale at the Carvills.

FOREIGN INTELLIGENCE.

Late from France.—By the packet ship *Charlemagne*, from Havre, whence she sailed on the 7th ult. we have our Paris files to the 6th inclusive. The most material intelligence is that relating to the condition of the Porte, and the possible quarrel that menaces to break out between France and Russia, for the honor and advantage of defending the Grand Signior from the triumphant arms of his rebellious Egyptian Pacha. A private letter from Paris, of 5th April, published in the Havre Journal of 6th April, gives this account of the refusal of *Mehemed Ali* to accept the proposals of France for an armistice and termination of the war.

We have received by express most important intelligence from Alexandria of the late date of 11th March. It comes to us from Toulon, where the brig *Swan* has arrived, with urgent despatches for Government. The amount of the intelligence is, that the Pacha of Egypt, *Mehemet Ali*, refuses to acquiesce in the propositions of France respecting the war between Egypt and the Porte. Admiral Roussin having sent to Alexandria an express in order to inform our Consul general of the note delivered at Constantinople, in concert with the English and Austrian Ambassadors, having in view to stop the march of Ibrahim, and to deprive Russia of all pretext for intervention; *M. de Mimault*, our Consul general, immediately asked and obtained an interview with Mehemet. The Pacha, who had on his side received dispatches from Ibrahim; received our Consul coolly, and refused plumply to expedite orders to his son to suspend his march upon Constantinople. It would seem that the part assigned him by the mediators excited his indignation, especially when he ascertained that conditions were in some sort prescribed to him without his being previously consulted. Our Consul immediately despatched the Swan with this intelligence.

This news, if accurate, and it seems very direct, and the vessel having arrived at Toulon from Alexandria, must necessarily be later than the intelligence by the way of Constantinople, is certainly important, and satisfactorily accounts for the capture of Smyrna and other military movements of *Ibrahim* after the armistice stipulated between the Porte and Admiral Roussin. The intervention of Russia now seems imminent; and on that head, we find the following letter from

Odessa, March 15.—A vessel in 64 hours from Constantinople, brings an account of the Russian fleet being still quietly at anchor in the Bosphorus. Meantime our government has hired many transports destined to convey to Constantinople the Russian troops which are advancing by forced marches to this region, in the event of the affairs of Turkey rendering such a movement necessary. The troops will certainly sail if Ibrahim should resume his advance; the more so, as the French ambassador having only guarantied peace on the condition that the Russian fleet should depart from the vicinity of Constantinople; and that condition not having been fulfilled, France will no longer feel herself bound.

The life of the Duchess of Berri is positively spoken of by the Gazette de France, as being in imminent danger. There is a daily report in that paper—surrounded in anticipation with mourning lines—of all that can be collected respecting her health.

M. de la Grange, the friend and confidential counsel of *M. Lafitte*, publishes a letter in the Paris papers, respecting *M. Lafitte's* affairs, in which, after bearing testimony to the unbounded liberality of his client towards the unfortunate and the needy, in his days of prosperity, avers that all the present creditors but *one* of M. Lafitte are paid—but that one, tho' abundantly secured otherwise, insists upon the sale of *M.L.'s* dwelling—and to this very individual, now his creditor, M. Lafitte remitted, some years back, more than 600,000frs. ($120,000) of debt due him.

Paris, March 30.—The following letter, addressed to M. Belmonlet, a man of letters, will be read with interest:—

London, March 20.

Sir—The unaccountable and too real proscription to which I and my family have been subject for so many years, will prevent me being present at the fete which is to take place for the benefit of the imprisoned patriots, and which is to be presided by the illustrious friend of Washington, and the Hon. M. de Cormenin. As you are one of the Stewards, I request you to present my offering. The bearer will deliver you to that effect a decoration of the Legion of Honor, set in diamonds, which belonged to my brother, the Emperor Napoleon, which he wore in the camp at Boulogne, and during the campaign of Ulm and Austerlitz, and which he gave me on his return. I wish that the events which it calls to mind may so enhance its value, as to render it of some utility to the generous citizens who are the object of the fete. I add to this decoration the sum of 600fr. for the same purpose. Accept, etc.

Joseph Napoleon Bonaparte.

The entertainment for the benefit of the imprisoned patriots referred to in Joseph Napoleon's letter, was to have taken place in the Salle Ventadour, but that building was refused by the Prefect of Police. It will consist of a grand ball and lottery, for which numerous valuable articles have been already sent. A hotel, situated in the rue de Sèvres, has been hired for the above purpose, and the day that is fixed is said to be the 7th of April. It is added that M. Belmontet intends, also, to place in the lottery, the decoration of Napoleon, which is intrinsically worth a considerable sum. He will add to it a very valuable sabre, which he has received for the same purpose from young Louis Napoleon. The workmanship of this sabre is admirable. On its blade are these words: *Honneur, Liberté, Patrie.*

The following letter has been addressed to the Editor of the *National*:—

London, March 23.—Sir,—I learn by the journals that a subscription has been opened for the purpose of buying in the hotel of one who, in July, sacrificed his fortune with a view to insure the prosperity and liberty of his country. The people are always generous; they do justice to the pure intentions of M. Laffitte, and are now rewarding, by a token of their esteem, his strict integrity and his noble patriotism. Desirous of associating myself with all who are generous in France, I send you my offering; for in exile we are affected, even in a higher degree, by the glory as well as by the misfortunes of our country. Accept, &c.

Louis Napoleon Bonaparte.

General Guilleminot is definitively nomihated Governor of Algiers.

Paris, April 4.—The Bill for coercive measures against Ireland passed the House of Lords in the session of the 1st of April. The royal sanction was given to the Bill by commission.

London, April 2.—We learn that our Government has received the reply of Prussia and Austria relative to their views on the subject of the affairs of Holland. It is asserted that they are in perfect accordance with those of France and England. This, it is said, is the occasion of the conference which took place yesterday, and the rise of the funds. Consols 87 3-4.

M. Dedel, (the Dutch Envoy) it is said, after his proposition had been rejected, made new ones, which consisted in demanding the release of the Dutch prisoners of war, and the removal of the embargo; in offering the opening of the Scheldt as before the citadel of Antwerp, (this is the important point) and in leaving it entirely to the decision of the whole conference to regulate the definitive Treaty between Holland and Belgium, provided the latter should consent to the same thing. The last proposition was to have been presented to the Belgian Government on the 31st March.

From the well-known character of the King of Holland, it is evident that this proposition conceals a new danger. The Cabinet of the Hague would not have demanded that the question should be left entirely to the discretion of the Conference, without having previously consulted the intentions of the Cabinets of the North, and satisfying themselves that the three Courts of the North would probably be favorable to the claims of Holland

Constantinople, 8th March.—The greatest activity prevails among the diplomatic body. A rupture between France and Russia is apprehended if the former does not disavow the precipitate conduct of Admiral Roussin. That officer nevertheless persists in demanding the sending away of the Russian fleet, asserts that this may easily be done if the will be there, that the vessels may be towed out by the steamboat which is in the great harbour. The Sultan does not appear to desire their departure, however some voices have been heard in the Divan in support of the French Ambassador, on the other hand, the Divan is suspected, as from there, since the defeat of the Grand Vizier, a number of intrigues have proceeded which have had the effect of spreading consternation and paralyzing the preparations of defence made by the Porte.

Daily conferences take place between the Envoys of France and England, but the latter appears to act with more precaution, and merely to prevent any serious difficulties. Seldom has there been so great a schism as at present among the diplomatists of Pera. They certainly existed at the time of the Greek insurrection, but then were attempted to be concealed. Now it is quite the reverse.—[Augsburg Gazette.]

Paris, April 4.—It is announced that at the moment the Egyptians took possesssn of Smyrna and changed the Turkish officers of that town, the French and English Consuls took down their flags, signifying to the commandant of the detachment that they would quit Smyrna if the Egyptian troops did not withdraw. At the last dates from Constantinople, which go to the 7th March, it was hoped that an arrangement would take place.

London, April 2.—*Evening.—Postscript.*—We learn from a person entitled to the utmost confidence, that news from Constantinople, via Odessa, has been

received by the government this evening. The dates reach to the 10th March. Admiral Roussin was making preparations to quit Constantinople, on account of his protestations against the prolongation of the presence of the Russian fleet at Bujukdere, and the march of the Russians from Jassy, proving unsuccessful. It is added that the French Ambassador had had a sharp altercation with the Reis Effendi, and that in consequence of said interview, he has demanded his passports.

Second Postscript.—Some additional information has been communicated to us on the subject of the despatches received by the Government from Constantinople. Admiral Roussin has not demanded his passports of the Porte, but had written to Paris to ask permission to retire.

New Granada.—We have files of Bogota papers to the 25th March—the address of President Santander—and a long report made by the Secretary of Domestic and Foreign Affairs, to the Constitutional Congress of 1833.

The message of Presid't Santander, the choice of Joaquim Mosquera as Vice President, and the general tone of the papers, inspire us with confidence that New Granada—even if all attempt to reunite the former States which composed the republic of Colombia should fail,—will enjoy in tranquillity, and gradually mature, free institutions. Both the President and Vice President have had the opportunity of examining the practical operation of a free representative system in this country, and of comparing the mass of happiness, of security and of equality diffused by it, with the results produced in Europe by the monarchical system. Our public schools and other means of disseminating as widely as possible the blessings of education, were objects of attentive inquiry to both those distinguished individuals;—and will be, we are persuaded, of their anxious imitation in New Granada—we hope not in vain.

[*From the Canton Courier.*]

Late from China.—*The Rebellion in Formosa.—Canton, Jan.* 10.—We hear that the rebellion on this island has assumed a very formidable appearance; and that all the disposable military force is being sent, with all speed, from the province of Fokien. Our native informants are by no means communicative on the subject, perhaps from the ignorance in which the government wisely shrouds all information of an unpleasant nature from the knowledge of the public Some reports are afloat of the rebels having submitted, and the ringleaders surrendered to the Imperial forces, but to these we do not attach much credit. The gross national vanity of the Chinese makes them exceedingly jealous of any reports, that may detract from the supposed power of the empire, reaching the ears of foreigners; and thus it is, that the usual reply to any question as to any of the numerous rebellions (which, year after year, spring up in some part of China, or its half conquered tributaries) is that the business is "just settled."

Canton, Jan. 10.—*The Weather.*—Our meteorological diary for the past month shows a more singular change in the temperature than can, we believe, be found in any other inter-tropical country in the world. At the beginning of the month, while a southerly wind prevailed, the thermometer stood at 76 deg. with sultry and oppressive weather, but the northerly wind, which in Canton always brings with it severe weather, suddenly reduced the temperature, especially at night. During the night of the 30th, a registering thermometer showed a fall of one degree below the freezing point, and ice was, on the following morning, found in considerable quantities, about half an inch in thickness.

Pirates.—By the Governor's orders, proclamations have been issued concerning a fleet of pirate boats, which have come up from Cochin-China, finding their depredations checked by the vigilance of that Government. Two of the boats have been taken, and the prisoners have stated that the whole fleet consists of upwards of 90 sail. The leader's name is Yang tsew-foo, a Chinese of Lintin (or Singan) district.

Canton, Jan. 5.—Our late Governor Le, of whose death so many reports have been circulated since his disgrace, has, it appears, arrived at Peking, where he awaits his trial for bad management during the Lee Chow insurrection, and other charges which have been preferred against him.

Canton, Jan. 12.—We hear that an edict has been received by the local government from his Imperial Majesty at Peking respecting the appearance of foreign vessels upon the coast. A copy of this document has been transmitted to the Chief of the British Factory, in which he is enjoined to prohibit in future the vessels of his country from persevering in these attempts to open a trade which can by no means be suffered. The officers of the Imperial Marine are also directed to keep a strict watch upon these strangers and send them back to Canton, whore alone the foreign trade is permitted to be carried on.

This is only one out of several similar edicts; but we presume that it has been provoked in this instance by the appearance of the Jamesina, which vessel left Lintin sometime since, as was understood, on a cruise of this description.

SUMMARY.

From Norfolk to New-York in 33 hours!!—The new arrangement of the Baltimore steam-boat Columbus and Pocahontas, says the Norfolk Beacon, which goes into operation on Sunday next, proposes to give a degree of despatch unexampled, to the conveyance petween Richmond, Norfolk and New-York, transporting the passengers from Richmond to New-York, in 41, and from Norfolk to that great commercial emporium in 33 hours.

The Genesee Aqueduct.—It appears that serious apprehensions are entertained, lest the aqueduct at Rochester should fail. A meeting has been held in that place to take its condition into consideration, and to take precautions to prevent the interruption of the navigation of the Canal in case of its being injured.

Tam O'Shanter.—Of the admirable group referred to in the annexed notice, we lose not a moment in advising every one to go and see it. No praise of these figures can go beyond the truth.

We feel great pleasure in announcing that Tam O'Shanter and his interesting companions, for whose safety fears have lately been expressed, are comfortably seated in the Sculpture room of the Academy in Barclay street, where they are now daily exhibited to the public. They are the first attempt at the comic in stone, which has, in any country, challenged the notice of the public. Contrary to expectation, their debut in England was completely successful; and not only the uninitiated gazer, but the cultivated artist, and even the fastidious connoisseur alike joined heartily in the merriment of the laughter loving group, and in their commendations of the genius which conceived and the hand which executed it.—We confess that we warmly participate in the anxiety which has been felt to behold the bold productions which have thus set the narrow bounds of the art at defiance, and have "won golden opinions" from its professors themselves; and we rejoice that these works, whose praises have been sung from the great metropolis of England to the "modern Athens" of Scotland, have found an asylum in the American Academy of Arts.

Inundation at Albany.—The steam boat Novelty, Captain Thomas Wiswall, arrived Tuesday evening at half past 8 o'clock, having left Albany at 10 o'clock in the morning. When the boat left Albany, the water had risen over the pier and wharves at Albany, and was still rising very fast. Large quantities of timber and lumber were to be seen floating down the river and property to a large amount in cellars near the wharfs had been damaged.

Naval.—The U. S. ship Natchez Capt. Zantzinger, bound to Brazil, went to sea from Hampton Roads, on Wednesday evening.

Passengers—Lieut. T. W. Shaw, James W. Watson, and W. W. Hunter, and W. P. Zantzinger, Purser.—[Norfolk Herald.

The U. S. schr. Experiment, Lt. Com. Mervine, with Chmmodore Elliot and family on board, sailed from Norfolk on the 7th inst. bound to Boston.

We regret to learn that the Hon. Langdon Cheves has had his arm broken by the upsetting of the stage between Augusta and Savannah. The driver of the stage was also much injured, but we understand they are both doing well.—[Charleston Post.]

Survey of the Gulf of St. Lawrence.—We learn from the Quebec Gazette, that Captain Bayfield and party are to proceed in the Gulnare to survey the Gulf, about the 22d inst. A tender built the past winter of about 40 tons, is to accompany the Gulnare, the navigation of the Gulf being too dangerous to admit of surveying in an open boat. The party are to return to Quebec in September.

[*From the Journal of Commerce of Saturday.*]

Exhibition of the deaf and dumb.—This exhibition attracted as great a crowd at Chatham street Chapel last evening, as was ever brought together there, on any occasion.

The pupils, of both sexes, and of different ages, had an appearance of uncommon neatness, cheerfulness, and intelligence. In their interesting exercises, they displayed a quickness of apprehention, and readiness of expression, which surprised every one.—The very youngest class, which had been instructed, in connected composition, not longer than ten days, wrote more readily and correctly than other children of the same age in any of our schools.

The recitation, by signs, of passages from the Spectator and Shakspeare, and the illustration, by signs, of various passions and emotions, and of the meaning of different words, were very interesting and curious. Roscius himself, who could express thoughts by gestures with as much nicety and variety as Cicero could give them in words, would have found a rival in the lad who recited Shakspeare's seven ages.

The President of the Institution, the Rev. Dr. Milnor, delivered a brief address concerning the affairs of the institution, from which we are sorry to learn that it labors under much pecuniary embarrassment. Four thousand dollars are wanted to discharge debts already incurred; and, notwithstanding the aid afforded by the Legislature, the funds of the Institution are wholly inadequate to the instruction of all the deaf and dumb in the State. The whole number of deaf and dumb in the State, at the present time, is about nine hundred, and even on the supposition that it will remain stationary, there will always be one hundred and fifty of suitable age for instruction. The whole number now under tuition is ninety-six.

Very able instructors have been obtained, and improvements in the mode of instruction are making. During the intervals of the usual course of instruction, lectures, by signs, on various subjects, are to be given to the pupils, by the professors.

The young men are also taught various trades, and the girls are instructed in plain and ornamental needle work, household affairs, &c.

Infant School Society.—The sixth annual meeting was held on Friday, (10th) at the Canal street Church.

The annual Report exhibits a gratifying view of the increasing number, popularity, and success of the schools in this city. The first Infant School was established here in May 1827, and the experience of six years has placed beyond dispute the practicability of instructing infants, not only in the branches of primary education, but in the principles of morals and religion.

There are now, in this city, 16 schools, wherein 2360 infant children receive instruction—1400 in the charity Schools, and 970 in those attached to the Public Schools. There are also 11 private schools conducted upon the Infant plan, comprising about 420 children. There are still 6000 children, under four years of age, who are not embraced in any of the schools. The Managers report that their funds are entirely exhausted, and unless their Treasury is replenished, their exertions can be of little avail. The impression that provision is made for the instruction of the infant children of the poor, is erroneous. That Society will be able to support but few infant schools, and their funds cannot be appropriated to children under four years of age. Under these circumstances, the Managers appeal with confidence to the public for further contributions.

Infant School Exhibition.—The Exhibition of one of the Infant Schools, comprising about 100 children, from a year and a half to five years of age, took place at the same time, and afforded much gratification to all who were so fortunate as to be present. They could not only read very well and converse intelligently, but they seemed to be no mean proficients in morals, arithmetic, grammar, geography, astronomy, &c. We have reason to belive that the children thoroughly understood what they seemed to understand, and that none of their answers or remarks were mechanical.

A liberal Act.—An act of liberality has come to our knowledge within a few days past, which deserves to be mentioned. A friend of ours purchased of the New York Life Insurance and Trust Company, an annuity of $400 for two near relatives, (mother and daughter) and within a few weeks after the purchase the annuitants both died, and all claim on the Institution for compensation, with them. A knowledge of the facts being laid by the President before the trustees, the Board unanimously passed a resolution awarding to the purchaser $400, being one

year's annuity. Such an act of liberality will go far to increase the confidence of community in this institution.—[Hudson Republican.]

The Collector of the Port of Philadelphia, has received the document addressed to Captain Kinsman of the brig Gazelle, by the Royal Humane Society of London, adverted to in the subjoined letter from the American Consul at London; and as it does not appear that the brig Gazelle belongs to this port, adopts this method of advising Captain Kinsman of the circumstance, and requesting to be informed where he may addressed.

CONSULATE OF THE UNITED STATES,
London, 22d March, 1833.

SIR—The Royal Humane Society of London, having unanimously adjudged that a vote of thanks inscribed on vellum, should be presented to Captain Kinsman of the United States brig Gazelle, for the preservation of the crew of the British schooner "William and Elizabeth," on the 27th September, 1831; and having requested me to forward it, I take the liberty of transmitting it to your care by Captain Mott of the brig Margaret Anne, as I understand from him that the Gazelle belongs to Philadelphia. Should he be mistaken, I would ask the favor of you to endeavor to ascertain in what way it can be sent to Captain Kinsman. I have the honor to be, Sir, your obedient servant, THOS. ASPINWALL.

We find in the Cincinnati (Ohio) Gazette, the following paragraph relative to the only bank, out of many applied for, incorporated by the Ohio Legislature at its last session.

Franklin Bank.—The following gentlemen were elected directors of the Franklin Bank, on Saturday last:—J. H. Groesbeck, Saml. Wiggins, W. Greene, Marcus Smith, J. P. Foote, M. T. Williams, George Luckey, Josiah Lawrence, Edward King, David Loring, Jas. McGregor, Wm. Disney, and Danl. Corwin.

Mr. J. H. Groesbeck was elected, by the Directors, President of the Bank.

Premium of $300.—The American Lyceum, during their late interesting annual session in New York, passed a resolution offering a premium of $300 for the best text book on Physiology for teachers. This they were enablod to do through the liberality of an individual who wishes to see the body trained with the mind.

A few days since, three young men, on the south side of the Island of Martha's Vineyard, were engaged in laboring in a field which was once an orchard—two of them ploughing, and the other picking up stones at a distance. As the plough passed over a certain part of the land, the ploughshare started up two or three pieces of silver coin, which were hastily snatched up by the holder, and put in his pocket.—His companion observed him stoop and pick up something, and when the plough went over the spot again, seeing him repeat the movement, he desired to change situations with him. This was done, and he too reaped his crop; when each finding that the other was master of the secret, they proposed a manoeuvre to get rid of the third person, so that they could divide the spoil without his coming in for a share.—They therefore declared it best to leave off work that afternoon, as it was nearly 12 o'clock, which was readily acquiesced in. What they obtained no one can exactly state—but it is believed that not far from two or three thousand dollars, which had been originally buried there in a bag, (ascertained by pieces of cloth adhering to some of the coin,) which were excavated. This was divided between the two, leaving the man in the field, (who was no less a personage than our good friend Jones, well known as the author of Haverhill) to attest the truth of the old adage,

"He who by the plough would thrive,
"Must either *hold* himseld or *drive*."
[New Bedford Gazette.]

A fire broke out in the city of Troy on Friday morning, which destroyed six buildings, occasioning a loss of property exceeding 10,000 dollars.

Tennessee Emigrants to Liberia.—A letter has been received from Mr. H. D. King, agent of the Colonization Society of Tennessee, dated at N. Orleans, announcing his safe arrival there with the last company of colored emigrants from this State on the 9th of April, and stating that the whole party from the west, amounting to about 150 or 160 persons, would sail in a few days from that port for Liberia, in the brig Ajax, Capt. Taylor.—Mr. King had determined to accompany the emigrants to Liberia, to examine in person the condition and prospects of the colony.—[Nashville Republican.]

Afflicting Casualty.—We learn that on Wednesday afternoon last, a part of the upper floor of the Flouring Mill of Mr. Storm Truesdell, at the Hudson Print Works, gave way, supposed to have been caused by the great weight of grain and flour, and Mr. James Clark, the miller, was killed. When the floor gave way, Mr. Clark and a young man by the name of Staats were on it engaged in removing grain from the front to the rear of the mill; Mr. C. was precipitated head foremost into the hopper; the grain and rubbish falling in upon him smothered him to death. Staats was not injured. The loss to Mr. Truesdell must be very great.

Mr. Clark was a native of England. and had been in this country about four years. What renders this accident still more afflicting, he was daily expecting his family from England. His wife and children are now on the ocean, or have arrived within a few days. He was a man much respected.—[Hudson Republican.]

The laying of the corner stone of the monument to the mother of Washington, took place at Fredericksburg on the 7th inst. agreeably to the concerted arrangements.

About 9 o'clock the President was escorted from his lodgings to the Town Hall, where he was introduced to a number of citizens and strangers, who called to pay their respects to the Chief Magistrate of the Nation. The day was fine, and the occasion attracted a large concourse of persons from the adjoining counties. The procession set out from the Town Hall at half past ten o'clock, and moved according to the arrangement of the Committee, in the order and through the several streets previously designated, to the site of the Monument.

As the procession moved up Main street, the extended line, the various uniforms of the military, the glittering arms, the music, the dense mass that thronged the side walks, the crowded windows, overlooking the whole scene, altogether presented a view grand and imposing.

Arrived at the spot, after an appropriate Prayer by the Rev. E. C. M'Guire, an Address was delivered by the President, and also by Mr. Bassett, the plate with the inscription deposited, and the other usual caremonies were performed. The procession then returned to the Town Hall, where the proceedings were concluded, and the companies separated.

PORT GIBSON, (MI.) APRIL 20.—The Indian who was convicted and sentenced for murder, at our last Circuit Court, received the reprieve of the Governor on Tuesday last. What few Indians were in the neighborhood made much rejoicing at his liberation.

It is stated by a writer in a recent number of the Galenian, that new and valuable discoveries of lead ore have been made upon the east bank of the Mississippi river, between the Platte and Grant Rivers, in Iota county, M. T. The ore is said to be of the best quality, found in large bodies, and over an extensive tract of country. Among the most valuable discoveries, is a horizontol cave, the entrance of which is about 150 feet above the level of the river. It is from two to four feet wide, and from six to nine feet high. From this cave about 400,000 pounds of lead ore have been taken, with little labor; and the operation was still continued. The land is of the best quality, and covered with timber. A town, called Van Buren, (which name has also been given to the mines and cave adjacent,) has been laid out, and that part of the country is rapidly increasing in population.

Choctaw Indians.—About 7,000 of these Indians it is estimated have removed during the past season.—A white teacher among them represents that they presented on their journey an appearance of great wretchedness. The cholera made great ravages among them.

Sir Archy.—This famous horse has cleared for his proprietor, (independent of his atchievements on the turf) $70,000. He is still living, but in the extremity of old age, (in his 30th or 31st year.) His vigor is extinct. He has not shed his hair for several years, and it has grown to the length of two or three inches. Agentleman who has lately seen him, says that of all animals he is the worst looking, and would be the last taken for the most celebrated horse of his age. His owner treats him with all possible kindness, as it would be unpardonable indeed if he did not. Provender without stint, at rack and manger, and a soft and delicate bed, proclaim the Proprietor's gratitude. The door is left open to allow his egress and ingress at pleasure, but it is observed that Archy only comes out to drink, and having done so, immediately returns to his stable.

Except those of the finny tribes, it is conjectnred that Sir Archy's posterity out numbers that of any living animal.—[Richmond Whig.]

LOTTERIES.—By the annexed act, it will be seen that after the 31st December, 1833, the State of New York will be freed from this most mischievous species of gambling.

An Act fixing the period for closing all the lotteries authorized to be drawn within this State. Passed April 30, 1833.

Whereas, John B. Yates and Archibald McIntyre, assignees of all the unsatisfied lottery grants made by this State, have executed to the people thereof an agreement, bearing date the twenty-fifth day of January last, that all lottery grants heretofore made by this State shall cease and determine from and after the close of the present year, and releasing and acquitting the people of this State from all right, title and claim to continue or draw any lottery within this State after the last day of December next, provided the legislature will pass an act declaring that the lotteries authorized by this State may be continued until the close of the present year: Therefore,

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. The lotteries authorized by law to be drawn within this State may be continued until the close of the present year; after the end of which period it shall not be lawful to continue or draw any lottery within this State; but all and every lottery heretofore granted or authorized within this State, shall absolutely cease and determine.

§ 2. That the said agreement and release of the said John B. Yates and Archibald McIntyre, shall be filed and recorded in the office of the Secretary of State.

Mortgages on personal property.—By an act of the last Legislature, every mortgage, or a copy thereof, of personal property is required to be filed in the office of the town clerk, where the mortgager resides, or if a non-resident, where the property is at the time of conveyance. If, however, there be a county clerk's office in the city or town, then it shall be filed in his office. Such mortgage is valid as against creditors, or subsequent purchasers for one year only, unless within thirty days next preceding the expiration of the one year, a true copy of the mortgage, together with a statement exhibiting the interest of the mortgage in the property, be filed as before.—[Hudson Rep.]

VERY LATE FROM CHARLESTON.—By the steam-boat David Brown, Capt. Penoyer, we have received Charleston papers to Saturday evening, 11th inst.

A POOR STORY.—By a statement of the affairs of the Merchants and Planters Bank of Augusta, it appears, that the bank owes $345,734 59, and has in available assets $85,927 51. The only hope for so great a deficiency rests upon $281,822 00 of doubtful debts. This statement does not include the amount due to stock holders for capital paid in, which is $224,975 00.

A correspondent of the Augusta *N. American Gazette*, writes from Milledgeville, under date of the 7th inst. that Judge WAYNE has been elected President of the Georgia Reduction Convention. The vote stood, JUDGE WAYNE 151; W. H. CRAWFORD 88, scattering 9. The same writer states, that the majority of the Union and administration members is *at least two to one*.

DANISH CLAIMS.—The Washington Globe of Tuesday last contains a list showing the result of every claim presented to the Board of Commissioners, under the late Treaty with Denmark. The full amount awarded in all the cases is $2,154,425. The sum actually payable is $670,564 78.

Green Peas.—The Alexandria Gazette of yesterday says, that Green Peas are quite plenty in that market.—Green Peas were on the table of the Cincinnati (Ohio) Hotel, on the 7th inst.

Important to Mariners.—We learn from a gentleman just arrived from St. John's, East Florida, that the lights at that place have been discontinued and the lighthouse itself will soon be taken down. This is owing to a sudden alteration in the channel of the river, which washed away part of the dwelling house attached to the station, and partly undermined the lighthouse. Proposals were issued for taking it down to prevent its falling into the water. The lanterns, railings, and stone, have been taken down and conveyed to a safe place.—[Balt. Gaz.]

PRESBYTERIAN EDUCATION SOCIETY.—The annual meeting of the Presbyterian Education Society was held last evening at Chatham street Chapel—The Hon. Theodore Frelinghuysen in the chair. The Report was read by the Rev. Mr. Patton. This Society was formed in 1818. During the whole period

of its existence, it has assisted 679 young men in obtaining an education for the Gospel ministry. The number now under patronage is 471, of whom, 74 are in 10 theological seminaries, 150 in 15 colleges, and 247 in 52 Academies. The number of new applicants received under patronage during the year, is 162; licensed to preach, 25; patronage withdrawn from 4. Amount of earnings by beneficences during the year, chiefl by manual labour, $6,504 04; being an average of $28 40 to each individual. Receipts of the year, exclusive of the above, $23,024 56. Expended, $24,014 56. Addresses were made by Rev. Messrs. Gilbert of Wilmington, Del., Waterman of Providence, Peters of this city, and Wisner of Boston. The House was well filled, and the services were listened to with great apparent interest.

We yesterday examined, in the Exchange, the beautiful row boat constructed by Mr. Joseph Francis, for which he has secured a patent. It is about 12 feet in length, beautifully modelled, clinker built, and put together with brass screws. It can, at pleasure, be taken apart put in a small portable box, and transported from river to river and from lake to lake. It is calculated for three men cr boys to row with sculls, and will carry the weight of halt a dozen individuals, with tolerable comfort and safety.—[Gaz.]

Fire Engine.—An Engine remarkable for the excellence of its mechanical finish and for the beauty and splendour of the ornamental work, has lately been made for the Corporation by Mr, James Smith, of 55 Elm street, and presented to Fire Company No. 23. It was yesterday placed for some hours in front of the Exchange, and excited general admiration.

It is but justice to the mechanics and the artist employed, beside Mr. Smith, in the making of this Engine, to give their names to the public. The decorations were designed and the carving executed by Mr. John F. Miller, Warren street. The painting, gilding and bronzing of the body was done by Smith & Freeman, Cherry street. The painting on the back is from the pencil of Mr. G. W. Twibell, N. A., a most promising young artist: it is a copy of "*the Trojan Fugitives,*" by Jones, R. A., London, and one more appropriate could with difficulty be imagined.

The total cost of this engine is sixteen hundred dollars, only about one-half of which is given by the Corporation, the remainder has been contributed, with laudible pride, by the members belonging to the fire company to which the engine is attached.—[Courier and Enquirer.]

M. *Grothe*, charge d'Affaires from Holland to Mexico, who sailed on the 8th in the Roscoe, for Liverpool, is accused by the Mexican Secretary of State, M. Gouzales, of quitting the country to which he was accredited without the customary formality of taking leave, and of dishonouring his diplomatic character and abusing the privileges attached to it, by leaving a large amount of debts unpaid.

We publish to-day two laws from the Argus; the one relating to the mutilation of bank notes—the other restricting the trading capacities of that indefinite person, Co.

An Act to prevent the mutilation of Bank Bills, passed April 30, 1833.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. Every person who shall mutilate, cut, deface, disfigure, or perforate with holes, or shall unite or cement together, or to any other thing, any bank bill, draft, note, or other evidence of debt, issued by any incorporated bank in this state, or shall cause or procure the same to be done, with intent to render such bank bill, draft note, or evidence of debt, unfit to be re-issued by said bank, shall, upon conviction, forfeit fifty dollars to the corporation who shall be injured thereby.

§ 2. This act shall take effect immediately after the passage thereof.

An Act to prevent persons from transacting business under fictitious names—passed April 29, 1833.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

§ 1. No person shall hereafter transact business in the name of a partner not interested in his firm, and where the designation "and Company," or "& Co." is used, it shall represent an actual partner or partners.

§ 2. Any persons so offending against the provisions of this act, shall, upon conviction thereof, be deemed guilty of a misdemeanor, and be punished by a fine not exceeding one thousand dollars.

§ 3. This act shall be published by the Secretary of State immediately, and shall not take effect until six months after its passage.

MISCELLANY.

[*From the Encyclopædia Americana.*]

ANTHONY WAYNE,

A distinguished general in the American army, was born in the township of Eastown, Chester county, Pennsylvania, January 1, 1745. His father was a farmer of great respectability, and passed a long life of usefulness to his country, having frequently occupied a seat in the provincial legislature, and repeatedly distinguished himself in expeditions against the Indians. His grandfather was a warm friend of liberal principles, and commanded a squadron of dragoons, under King William, at the memorable battle of the Boyne. He emigrated to America in 1722. The subject of this sketch received a good education, though, for some time after his entrance into school, he spent much more time in planning and executing military amusements, than at his books; but, in consequence of a threat of his father to consign him to the drudgery of the farm, he applied himself assiduously to study, and in mathematics, attained great proficiency. After leaving the Philadelphia academy, at eighteen years of age, he took up his residence in his native county, and commenced the business of a surveyor, in which he acquired great reputation and success, devoting also a portion of his time to practical astronomy and engineering. On these subjects he left manuscripts, which have obtained high commendation from adequate judges. He likewise filled some county offices, and took a very active part in the preparation for the struggle which resulted in the independence of these United States. He was one of the provincial deputies, who, early in the year 1774, were chosen by the different counties of Pennsylvania to take into consideration the alarming state of affairs between Great Britain and her colonies and report concerning it; and a member of the Pennsylvania convention, which shortly afterwards assembled at Philadelphia, and excited powerful emulation in the other colonies. In the same year he was chosen a represeutative of Chester county, in the provincial legislature, and, in the summer of 1775, was appointed a member of the committee of safety, to whom the duty appertained of calling into actual service the *associators* (as they were termed,) and providing for the defence of the province against invasion from abroad and insurrection at home. Being desirous of serving his country in a military capacity, to which his natural bent was strong, he retired from civil employment in Sept. 1775, and raised a company of volunteers, of which he was nnanimously elected colonel. In January of the ensuing year, he was appointed, by congress, colonel of one of the regiments which they had resolved to raise in Pennsylvania, and, at the opening of the campaign, received orders to join the army under general Lee, at New York. Thence he proceeded with his regiment to Canada, and shared in the unsuccessful attack upon the enemy at Three Rivers (conducted by general Thompson,) on which occasion he was wounded, and distinguished himself for his bravery and good conduct in uniting and bringing off the broken troops. After the retreat from Canada, and the departure of Gates to join Washington's army, he was entrusted, by general Schuyler, with the command of the fortresses of Ticonderoga and Mount Independence. Feb. 21, 1777, he was promoted, by Congress, to the rank of brigadier general. He continued in command of Ticonderoga and its dependencies until the month of May, when, in consequence of his earnest solicitations, he was allowed to join the main army, under Washington, in New Jersey, where he was immediately placed at the head of a brigade, which he made every exertion to bring into the field in the highest state of discipline.—After the British retreated from New Jersey, the commander in chief complimented him on his bravery and good conduct. As soon as the object of the next movement of Sir William Howe was developed, general Wayne, in pursuance ot the directions of Washington, left his brigade under the next in command, and proceeded to Chester, in Pennsylvania, to arrange the militia who were to rendezvous there. In the battle of Brandywine (Sept. 11, 1777,) he commanded a division stationed at Chad's ford, for the purpose of resisting the passage of the column under Knyphausen. He maintained the contest with the utmost gallantry until near sunset, when, at length, overpowered by numbers, and perceiving the enemy, who had defeated the right column of the American army, approaching his flank and rear, he was compelled to retreat. A few days afterwards (on the 16th,) Washington determined to try the fate of another battle; and, both armies being arrayed in Goshen township, Chester county, on the road leading from Philadelphia to Lancaster, the action was commenced with great spirit by Wayne, who led the advance. It was soon arrested, however, by a violent storm, which rendered it impossible to keep the field. On the 20th, Wayne, in pursuance of the orders of the commander-in-chief, to move forward upon the enemy, and endeavor to cut off his baggage, took an excellent position, with 1500 troops, including militia, a mile south of the Warren tavern, and three miles in rear of the left wing of the British army, whence, after being reinforced, it was his intention to march and attack the enemy's rear when they decamped. He made every arrangement to prevent a surprize; but the British, having received full intelligence of his movement from traitors, and being faithfully piloted by them, contrived to attack him unawares, with superior numbers, and obliged him to retreat after an obstinate resistance: but his troops formed again at a small distance. This affair having caused some to attach blame to him, he demanded and obtained a court martial, by whom it was unanimously decided, that he had done "everything that could be expected from an active, brave, and vigilant officer, under the orders which he then had;" and he was therefore acquitted "with the highest honor." At the battle of Germantown, he evinced his wonted valor, leading his division into the thickest of the fight, and in covering the retreat, he used every exertion which bravery and prudence could dictate. His horse was killed under him within a few yards of the enemy's front, and he received two slight wounds, in the foot and in the hand. During a large portion of this campaign of 1777, owing to a combination of circumstances, he performed alone the duty of three general officers. About the middle of February, 1778, when the army was in winter quarters at Valley Forge, and suffering miserably from want of provisions, he was detached with a body of troops to New Jersey, in order to secure the cattle on the eastern banks of the Delaware, and to destroy the forage which could not be removed, lest it should fall into the hands of the enemy. This was a most hazardous and arduous enterprize, within the limits of the enemy's lines, and in a disttrict of country subject to his control whenever he chose to exert it; but he cheerfully proceeded to execute the orders of the commander-in-chief and literally carried on a winter campaign beyond the reach of any aid. After several skirmishes with the enemy, in all of which was successful, he succeeded in sending to camp several hundred head of fine cattle, many excellent horses, suited for cavalry service, and also in securing a quantity ef forage, and destroying much more, for the whole of which, for the well affected, he executed certificates in due form. He returned to the army about the middle of March and, with his officers and soldiers received the thanks of the commander in chief. In all councils of war, general Wayne was distinguished for supporting the most energetic and decisive measures. In that which was held before the battle of Monmouth, he and general Cadwallader were the only two of the seventeen general officers who were in favor of fighting. This engagement added to his reputation, his ardor and resolution having been so conspicuous that Washington mentioned him with particular distinction in his official report to Congress. In 1779, Washington, having formed a corps of light infantry, composed of a select body of troops from the different regiments of the army, appointed general Wayne to its command. In July of this year, he was intrusted, by the commander in chief with the execution of a design which he had formed for attacking the strong post of Stony Point, on the Hudson river. For the details of his success in carrying the fort (on the 15th of July) by a night assault, and making the garrison prisoners with bayonets alone, without firing a single gun, we must refer to the history of the times. In the attack, he was struck by a musket ball on the forehead, which grazed the skull nearly two inches in length, just under the hair. He fell, but instantly rose on one knee, exclaiming, "Forward, my brave fellows, forward!" then, in a suppressed voice, said to his aids, "Assist me: if mortally wounded, I will die in the fort." They did so, and the three entered amongst the foremost troops. The wound fortunately proved slight. The thanks of Congress, and a gold medal emblematic of the action, were presented to Wayne for his "brave, prudent, and soldierly conduct." At the end of the year 1779, the corps of light infantry was dissolved; and, soon afterwards Gen. Wayne resumed his command in the Pennsylvania line. During the campaign of 1780, he was constantly actively employed; and, in that of 1781, which ended in the capture of Cornwallis and the British forces at Yorktown, he bore a conspicuous part. He was sent by Washington to take command

of the forces in Georgia, where the enemy were making formidable progress. After some sanguinary encounters, he accomplished the establishment of security and order, and was presented by the Legislature of the State with a valuable farm for his services. Peace soon after followed, when he retired to private life. In 1789, he was a member of the Pennsyvania Convention, and an advocate of the present Constitution of the United States. In 1792, he was appointed by Washington the successer of Gen. St. Clair in the command of the army engaged against the Indians on the western frontier. It was at first supposed that his ardor would render him an unfit opponent of a foe remarkable for caution. He soon, however, proved the incorrectness of this idea. He established admirable discipline among his troops, and by his wise and prudent measures in preparing for an engagement, and the skill and bravery with which he fought and gained the battle of August 20, 1794, near the River Miami of the Lakes, he brought the war to a completely successful termination. In 1795, he concluded a definitive treaty of peace with the Indians. Gen. Wayne died in December, 1796.

ABBOTSFORD.—In the London Literary Gazette of 23d March, we find copied from this paper nearly at full length, the very interesting account of the visit paid by Prof. McVickar and his family, to the departed Genius of Abbotsford—with the following preliminary observations:

ABBOTSFORD.—At the time when a noble effort is making to preserve the mansion of Abbotsford, with its literary treasures, and the specimens of art and taste collected by its late possessor, that they may remain forever in the line and name of Scott; and that generations yet unborn may have the opportunity of seeing, as they were created and formed by him, the darling abode, and sources of intellectual enjoyment, of the man who has so largely contributed to the enjoyments of his kind—we have read with great pleasure the description of a visit to Abbotsford, by an enlightened American traveller, and published in the "New York American," of Nov. 23. From this interesting paper we are induced to copy the leading parts, feeling assured that the perusal of so vivid and touching a narrative will have the effect of promoting the patriotic and national object to which we have alluded. If the inhabitant of another hemisphere, in our own day, experienced such emotions and delight in exploring the spot rendered immortal by the genius of its owner, what must be the sensations of his own countrymen in future ages, when they may perform a pilgrimage to the sacred scene—may witness the very works of his living hand, before they drop a tear on the grave where his mortal remains have their lasting rest in Dryburgh's mouldering Abbey!

The following interesting information respecting the progress of the subscription for the purchase of Abbotsford, is given at the conclusion of Prof. McVickar's narrative:

Having occupied so large a portion of our No. with what we trust will excuse its length by its interest, we have not room to do more than mention the present progress of the Abbotsford subscription.

Within the present week, her Majesty the Queen of Spain, having previously subscribed 20*l.* to the proposed Edinburgh monument, has transmitted another donation of 20*l.* towards the perpetuation of Abbotsford as a family and public monument. This noble instance of royal regard for a foreign object, was communicated through the Spanish minister, le Chevalier de Cordoba, a gentleman himself of distinguished literary talent, which made it the more gracious and acceptable, especially as no other continental government has shown any regard for this design. Perhaps the illustrious and gratifying example may yet be followed; for Scott's memory will be cherished by the people of Germany, France, and other continental nations, almost as much as among ourselves. At all events, we shall not forget the Queen of Spain.

There is to be another general meeting of the subscribers, &c. next month, when the state of the fund will no doubt be made public; and such measures be adopted as will complete what may yet remain to be done for the full accomplishment of the proposed plan.

One of the most interesting books produced on the occasion, was recently transmitted by that estimable Scotsman, Sir Pultney Malcolm. It is filled from the first line to the last with the subscriptions of all ranks in the squadron under his gallant command—from the pounds of the higher officers to the shillings of the jolly mates. Such a tribute is, indeed, well worthy of being bound up with the rest among the archives of Abbotsford.

How beautifully the common love of literature amalgamates adverse political and other opposing feelings which belong to the busy world! An Abbotsford subscription-book has been opened by our consul at Algiers, and the first name upon its page is that of the Duc de Rovigo, the personal friend of Napoleon, whose life, by Sir Walter Scott, gave so much offence to his admirers.—[Ed. Lit. Gaz.]

[FOR THE NEW YORK AMERICAN.]

Anecdote concerning Sir Walter Scott, not before published.—Contrast of taste between Husband and Wife. On a fine day in spring Sir Walter Scott and his lady sallied forth to enjoy a walk upon his own grounds of Abbotsford. In their wandering they passed through a grass field where ewes were nibbling at the pasture, each attended by one or more lambs. Attracted by the sportive frisking of the lambs, Sir Walter remarked, that "there was no "wonder that Poets, from the earliest ages had se-"lected the lamb as an emblem of innocence, for no-"thing could be conceived more innocent than its "lively playful gamhols." "Yes," replied Lady Scott, "I like them very much with mint sauce!" Many husbands would, for obvious reasons, have allowed this incident to pass into oblivion; but Sir Walter, who seems to have thought the joke too good to be lost, communicated it to a respected neighbor and friend, without any injunction of secrecy. He however, considering that there might be, to a certain extent, an implied confidence in the communication, abstained from giving it publicity till both the gifted Baronet and his unpoetical helpmate should be placed, as they are now, beyond the possibility of having their feelings hurt, even in the smallest degree, by its publication.

DESCRIPTION OF BRITISH SHIPS AT THE TIME OF CÆSAR'S INVASION.—Their botttoms were flatter than those of the Roman vessels, that they might be the better accommodated to tide harbors and to a shoal coast; and they were elevated both at the prow and the poop, because that mode of building was then deemed best adapted for stormy seas. They were constructed wholly of oak for strength; the anchors were secured by iron chains instead of cables; and the sails were made of skins and thin leather, either because the people were not acquainted with the use of linen, or because it was erroneously supposed and this was thought by Cæsar to be more likely) that no weaker material could withstand the winds to which they were liable in these parts. It was by disabling their rigging that he defeated them; and this he effected by affixing keen bill-hooks to long poles, and catching with these the ropes whereby their sails were fastened to the mast: this hold having been caught, the Roman rowers put forth all their strength, and when the tackling was cut the ship became unmanageable. Thus the Romans obtained a victory which they knew not how to seek by any other means; for the beaks of their galleys could make no impression upon the strong oak timbers of the Gauls and Britons; and even when they set up towers, the enemy looked down upon them from their lofty poops, and threw their weapons with advantage. An opportune calm enabled Cæsar to complete his success, when the ships which had saved their cordage endeavored to make off; and of two hundred and twenty sail, of which the allied fleet consisted, so few escaped, that their naval force was in that action destroyed.—[Southey's Naval History of England.]

Hydro Oxygen Microscope.—An exhibition has just been opened in London, which combines the wonderful with the instructive in an extraordinary degree. By a very ingenious philosophical application of an intensely brilliant gas light, the whole effect of a solar microscope is constantly produced, independent of atmosphere or cloud. The most minute objects in nature are magnified many hundred thousand times, and the most remarkable phenomena that can be imagined are shown to the spectators. The appearance of living animals in drops of water are enough to astonish the thirst for that liquid into adjuration. We cannot recommend to old or young a more curious and impressive half hour's disposal of time than in witnessing the whole of this very scientific and entertaining exhibition.

LOBSTERS.—Southey mentions in his Naval History, that "naval war, since the introduction of gunpowder, has affected the lobsters. After a great naval action the fishermen say that those on the adjacent coast are found to have cast their claws, and for a while they forsake those parts."

Foreign Journals.—By Colombo papers, to October 13, we learn, that the mail coach travelling introduced into Ceylon continues to open the way to a better acquaintance with the interior.

POETRY.

THE MOTHER OF WASHINGTON.—By MRS. SIGOURNEY.

[*From the Political Arena.*]

ON LAYING THE CORNER-STONE OF THE MONUMENT OF MRS. WASHINGTON.

Long hast thou slept unnoted! Nature stole
In her soft ministry around thy bed,
And spread her vernal coverings, violet-gemm'd,
And pearl'd with dews. She bade bright Summer bring
Gifts of frankincense, with sweet song of birds,
And Autumn cast his yellow coronet
Down at thy feet,—and stormy Winter spake
Hoarsely of Man's neglect.

But now we come
To do thee homage,—Mother of our Chief!—
Fit homage—Such as honoreth him who pays.

Methinks we see thee, as in olden time,—
Simple in ga. b—majestic and serene—
Unaw'd by 'pomp and circumstance'—in truth
Inflexible,—and with a Spartan zeal
Repressing Vice, and making Folly grave.
Thou didst not deem it Woman's part to waste
Life in inglorious sloth, to sport awhile
Amid the flowers, or on the Summer wave,
Then fleet like the Ephemeron away,—
Building no temple in her children's hearts,
Save to the vanity and pride of life
Which she had worshipp'd.

Of the might that cloth'd
The "Pater Patriæ,"—of the deeds that won
A nation's liberty, and earth's applause,
Making Mount Vernon's tomb a Mecca-haunt
For patriot and for sage, while time shall last,
What part was thine, what thanks to thee are due,
Who 'mid his elements of being wrought
With no uncertain aim—nursing the germs
Of godlike Virtue in his infant mind,
We know not—Heaven can tell.

Rise, noble pile!
And shew a race unborn who rests below,—
And say to Mothers, what a holy charge
Is theirs,—with what a kingly power their love
Might rule the fountains of the new-born mind—
Warn them to wake at early dawn, and sow
Good seed before the world doth sow its tares,
Nor in their toil decline,—that angel-hands
May put the sickle in, and reap for GOD,
And gather to His garner.

Ye, who stand,
With thrilling breast, and kindling cheek, this morn,
Viewing the tribute that Virginia pays
To the blest Mother of her glorious Chief,
Ye, whose last thought upon your nightly couch,
Whose first at waking, is your cradled son—
What though no dazzling hope aspires to rear
A second WASHINGTON—or leave your name
Wrought out in marble with your country's tears
Of deathless gratitude,—yet may ye raise
A monument above the Stars—a soul
Led by your teachings and your prayers to GOD.

L. H. S.

CHILDHOOD.

We come to being from the night,
As cometh forth the morning light;
The world is beautiful and new,
The earth is filled with flowers and dew;
Birds loudly sing on wing and spray,
And we more merrily than they.
We gather strength, we run, we leap,
Find joy in every thing—and sleep.
With mirth and beauty hand in hand,
We take possession of the land:
Life *then* is surely not a breath—
What *then* has life to do with death?
A mother's love, her smiles, her tears,
Are with us in those blessed years;
The seeds of fond affection sown
In youth, that strong in age are grown;
Love, that in part her love repays,
Her solace in declining days;
Warmth, light in age's wintry gloom,
Fair stars, sweet blossoms to the tomb.
Then knowledge comes with manhood's noon,
With care and sorrow—all too soon.
The springs of mystery are unsealed,
Whate'er was hidden is revealed:
A common vision is the spring;
The rainbow is a common thing;
The morning and the sunset skies
Are gazed on with familiar eyes;
The reign of wild delight is o'er,
And the bright earth is heaven no more!

R. HOWITT.

Yriarte.—The following is a translation from one of the best fables of this distinguished writer:—

The Ass and the Flute.

As through a field a merry ass
In search of thistles chanced to pass
A shepherd's flute forgotten lay
Direct, by chance, in Grizzle's way,
And as again he stops to feed,
His breath, by chance, inflates the reed.
Sudden th' unusual sound he hears,
Astonished Grizzle pricks his ears,
And proudly said or seemed to say:
"Oh, oh! how well this flute I play!
Will mortals still our music slight?
Egad! I'll bray from morn 'till night."

MORAL.

A fool, without a claim to wit,
May once succeed the mark to hit;
And should success be crowned with praise,
Enough—the ass for ever brays.

REVENGE.

A vixen wife who felt the horsewhip's smart,
Ran to her father, begg'd he'd take her part;
"What is your fault," said he: "come state the case,"
"I threw some coffee in my husband's face,
For which he beat me!" "Beat you, did he! 'stife!
He beat my *daughter!* zounds! I'll beat *his wife.*
If for such fault he gives my daughter pain,
Come but his wife—I'd beat her home again."

MARRIAGES.

On the 7th inst. at West Town, Orange Co. N. Y. by the Rev. Mr. Depew, JAMES M. TAYLOR, Merchant, of New Orleans, to Miss HANNAH ROSAMOND, second daughter of Caleb Howell, Esq of the former place.

Yesterday morning, in Grace Church, by the Rev. Dr. Wainwright, WILLIAM P. VAN RENSSELAER, of Albany, to ELIZA BAYARD, youngest daughter of B. W. Rogers, Esq. of this city.

Wednesday morning, 15th instant, by the Rev Dr. McAuley, OLIVER BRONSON, M. D. to Miss JOANNA DONALDSON, both of this city.

DEATHS.

Wednesday night, 8th instant, at 11 o'clock, after a lingering sickness of 8 months, ROBERT MATTHEWS, Printer, a native of Guernsey.

On Tuesday evening, at the house of L. Baker, Esq. Mrs. SUSAN U. NIEMCERVIEZ, wife of *Julian Urzin Niemcerviez*, of Poland, aged 74.

Last evening, EVERT C. LITTELL, of the complaint of the lungs, in the 36th year of his age.

This morning, GEORGE CLEMENT, infant son of Dennison and Maria Williams, in the 5th year of his age.

This morning, Mrs. ELIZABETH JONES, in the 56th year of her age.

Last evening, MARY PEARSALL, aged 27 years.

On Sunday morning, after a long and painful illness, which he bore with christian fortitude, Mr. G. W. TYLER, (son of Mr. William T. and grandson of the celebrated comedian) in the 29th year of his age. Having devoted himself to the fine arts, and furnished promise of great professional excellence, his good qualities have endeared him to his associates, and left a durable claim to their sympathetic recollection.

At Barnum's City Hotel, Baltimore, on Monday night last, P. VAN BEECK VOLLENHOOVEN, Esq. son of the chief of the old and respectable house of Van Beeck Vollenhooven, of Amsterdam. He retired at his usual hour, and was found dead in the morning apparently in the same position in which he had reclined. He was a young gentleman of highly engaging mind and manners, and in his whole tour through the United States, was universally a favorite in the highest circles of society.

At the residence of her brother-in law M. J. Myers, Esq., Mobile, on the 23d ult., Miss MARY ANNA, daughter of the late Abraham Reynolds, of this city.

REPORT OF DEATHS—WEEK ENDING SATURDAY, MAY 11.

Between the ages of

90 and 100—	0	50 and 60—	2	10 and 20—	3
80 and 90—	2	40 and 50—	8	5 and 10—	4
70 and 80—	2	30 and 40—	6	2 and 5—	10
60 and 70—	6	20 and 30—	10	1 and 2—	5

Of and under one year, 33.

Total, 91—22 men, 14 women, 32 boys, 23 girls.

Diseases.

Asphyxia	1	Inflammation of brain	1
Cancer	1	Inflammation of chest	1
Casualty	1	Insanity	1
Consumption	27	Intemperance	1
Convulsions	6	Marasmus	4
Cramp in the stomach	1	Mortification	1
Diarrhœa	2	Old age	2
Dropsy in the chest	1	Palsy	1
Dropsy in the head	6	Peripneumony	6
Fever	1	Sore throat	1
Fever, bilious remittent	1	Spasms	1
Fever, intermittent	1	Stillborn	10
Fever, typhus	1	Tabes Mesenterica	1
Hives or croup	1	Unknown	1
Inflammation of bowels	4	Whooping cough	3

ABM. D. STEPHENS, City Inspector.

RAILROAD NOTICE.

☞ The subscriber having been appointed by the General Assembly of this State, at their session in New-Haven, in May last, to call the first meeting of the "Boston, Norwich and New-London Railroad Company," hereby gives notice that the first meeting of said Corporation will be holden at Clark's Hotel, in the city of Norwich, on Wednesday the 29th day of May next, at 2 o'clock in the afternoon. WM. P. GREENE.

Norwich, Conn. April 22, 1833. m18 2t

QUINEBAUG BANK.

☞ The Commissioners appointed to receive subscriptions to the Capital Stock of the Quinebaug Bank, will open the books for that purpose, at Clark's Hotel, in the city of Norwich, on Wednesday the 29th day of May, at 9 o'clock, A. M. At the time of subscribing, an instalment of ten dollars will be required to be paid, in gold or silver, or in bank notes of any bank in the state of Connecticut, or of the Bank of the United States, or of any of the banks in the cities of New-York or Boston.

DENNIS KIMBERLY,
EBEN. JACKSON, Jr.
J. G. W. TRUMBULL,
JEDEDIAH HUNTINGTON
SAMUEL INGHAM,
} Commissioners.

Norwich, Conn. April 2?, 1833. m18 3t

TO DIRECTORS OF RAILWAY COMPANIES AND OTHER WORKS.

☞ An Engineer lately from England, where he has been employed in the location and execution of the principal railways in that country, wishes to engage with some company in the United States.

From his practical knowledge of the various kinds of motive power, both of stationary and locomotive engines, also the construction of railway carriages of many descriptions, he has no doubt that he would prove of efficient service to any company having works now in progress.

Letters addressed to W. E. G. 85 Wall street, or to the care of Wm. & F. Jacques, 80 South street, will be punctually attended to. Most satisfactory reference can be given. m11 tf

NOVELTY WORKS,

Near Dry Dock, New-York.

☞ THOMAS B. STILLMAN, Manufacturer of Steam Engines, Boilers, Railroad and Mill Work, Lathes, Presses, and other Machinery. Also, Dr. Nott's Patent Tubular Boilers, which are warranted, for safety and economy, to be superior to any thing of the kind heretofore used. The fullest assurance is given that work shall be done well, and on reasonable terms. A share of public patronage is respectfully solicited. m18

MECHANICS' MAGAZINE, AND *Register of Inventions and Improvements.*

☞ To the Mechanics of the United States.—In this populous and enlightened country, almost every description of persons can obtain knowledge and amusement, connected with their peculiar pursuits, through the Medium of the Journal or Magazine especially devoted to their interests. The *Theologian*, the *Farmer*, the *Philosopher*, the *Sportsman*, and even the *Plough-Boy*, has each his journal, where he can find a record of the passing events of the day, connected with his peculiar avocations, and recreation. Hitherto, the *Mechanics* (who form a large and most important portion of the community) have had no Journal to which they could turn, with the certainty of finding that information they desire—no periodical, of which they could with confidence say,

"THIS IS OURS, AND FOR US."

In the hope that the attempt to supply such a want, at a price so reasonable as to be within the reach of all, will meet with your active support, the subscriber proposes to publish on the first day of each month a "*Mechanics' Magazine.*" It will contain a well digested selection of the most useful and interesting articles from the London Mechanics' Magazine, London Register of Arts and Sciences, Repertory of Inventions, Library of Useful Knowledge, Journal of the Franklin Institute, and other works connected with the Arts and Manufactures published in this country and in Europe, accompanied with numerous well executed engravings. Its pages will be open for the communications of all, and especially for those of the Practical Artisan, to whose interests it will be more particularly devoted.

The "*Mechanics' Magazine*" will contain also a due portion of the occurrences of the month, Scientific and Literary, Reviews of Books, Anecdotes, Economical Receipts, Reports of the state of *Mechanics' Institutions*, and other Scientific Societies in this and other countries.

☞ In order that the work might be produced to the entire satisfaction of those for whom it is designed, and with credit to myself, I have secured the aid of a gentleman who was for several years engaged in publishing the *London Mechanics' Magazine*—a work of great merit and extension, and which Dr. Berkbeck, the President of the London Mechanics' Institution pronounced as the most valuable gift the hand of science ever offered to the Artizan

Each succeeding number will contain 64 pages, handsomely printed, and attached in a neat cover. Six numbers will form a volume, for which an Index and Title-page will be supplied, and also a Portrait of some distinguished Mechanic, as a Frontispiece.

Terms, $3 per annum, *in advance.*

D. K. MINOR, 35 Wall street, New-York.

*** No 4 (for April) is just published and ready for delivery.

G. LANSING, *Engraver on Wood,*
35 WALL STREET.

☞ All kinds of Machinery correctly drawn, and neatly engraved. M4

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keep constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

☞ Spikes are kept for sale, at factory prices, by I. & J Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 223 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practical, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

J23 1am H. BURDEN.

☞ TOWNSEND & DURFEE, of Palmyra, *Manufacturers of Railroad Rope*, having removed their establishment to Hudson, under the name of *Durfee & May*, offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co, Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, January 29, 1833. F31 tf

SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality, warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, corner of Maidenlane. J31 6t

ENGINEERING AND SURVEYING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG,

Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to later al angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Superintendant of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors. E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Phila. and Germant and Norrist. Railroad

m1 1y

☞ GRACIE, PRIME & CO., offer for sale, at 29 Broad street—

2 cases Gum Arabic		
20 do. Danish Smalts, EFFF		
10 do. Saxon do. do.		Reduced Duty
100 bags Saltpetre		
2 do. Gall Nuts; 20 tons Old Lead		
100 do. Triest Rags, FF		
6 boxes each 50 lbs. Tartaric Acid		
6 do. each 25 lbs. do. do.		
1 case 50 bottles Syrop de Vinaigre		
10 cases White Hermitage; 20 do. Cotic Rotie		
10 do. Dry St. Peray; 50 do. Bordeaux Grave		
20 do Chateau Grille; 5 cases each 12 bottles Olives in Oil		
8 bales Fine Velvet Bottle Corks		
100 do. Bourbon Cloves		
30 do. Molieres Almonds		
143 bundles Liquorice Root		
4 bales Goat Skins		
1 cask Red Copper, 1 do. Yellow do.		

DRY GOODS BY THE PACKAGE.

10 cases light and dark ground Prints
40 do. 3-4 and 6-4 colored and black Merinos
15 do. 6-8 colored and black Circassians
2 do. Silk Bandannas, black and colored
4 do. Italian Lustrings
3 do White Satteens
4 do. White Quiltings
10 do. Borrie's Patent Thread, No. 22 and 25
10 do. Super high col'd Madras Hdkfs, ent. to debenture
100 pieces Fine English Sheetings, for city trade
3 cases Cantoon Cords
2 do. Super blue, black, and colored Cloths—selected expressly for Merchant Tailors
25 bales low priced poin Blankets.

PAPER—

IMPERIAL AND ROYAL—From the celebrated Saugerties Mills, of the following sizes, all put up with 480 perfect sheets to each ream—

Sizes—24x35. 24½x36, 24x34½. 23x36, 26x37, 29x41, 27x39½, 24x38, 24x29, 24x28, 24x26, 24x27, 20x24, &c., &c.

Also—All the old stock of Medium will be sold at very reduced prices, to close sales, the Mill having discontinued making that description of paper.

ALSO,

Chinese Colored Paper—for Labels, Perfumery, &c.

5 cases each 1600 Sheets Colored Paper							
2	do	do	do	do	do	superfine	
2	do	do	do	fig.	do	do	
3	do	do	do	plain	Gold	do	
2	do	do	do	plain	Silver	do	
2	do	do	do	Silver	do	with red figures	
2	do	do	do	Gold	do	do	
2	do	do	do	Red	do	Gold do	
2	do	do	do	White	do	Silver do.	A30